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COMETILLA;

OR

VIEWS OF NATURE.

BY

POLLINGROVE ROBINSON, Esq. *R*

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VOL. I.

BEING AN INTRODUCTION TO  
ASTRONOMY.

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VIRGINIBUS PUERISQUE CANTO.

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COMET

OF

VIEWS OF NATURE

BY

ROBERTSON FORSTER



THE ROYAL SOCIETY

AND

THE ROYAL SOCIETY OF LONDON

AND



## PREMONITION.

**T**HE Editor of these Views had the singular felicity of receiving them from the lips of him who took them. Marco was the friend of his youth; and much of what the following sheets contain passed under the Editor's eyes.

Marco, on his death-bed, in the favourite cottage, whither it was his desire that his body might be

#### iv P R E M O N I T I O N .

conveyed, on any visible token of dissolution, called the Editor to him, and, making him sit down on the side of his couch, took one of his hands betwixt both his, and thus, with a serene and joyful countenance, but with a faltering voice, addressed him:—

My dear youth, you have long been my companion, and friend. You have shared in my pangs, as well as in my pleasures. Your presence has ever softened the first, and given a zest to the last. But now the term of both seems approaching. You will now be left  
to

## P R E M O N I T I O N . V

to bear and forbear, by yourself; and, as you have been dear to me thro' life, I cannot leave this world without imparting to you, at my death, the means I have always had recourse to, in order to take the sting from misery, and curb the impetuosity of pleasure.

Two big tears stood in the Editor's eyes, and his heart swelled at the awful address: but, as he had ever listened to his words as to the voice of the Divinity, his attention gave a momentary check to the emotion of his soul.

Next to my reliance on the God

babbling

A 3

of

vi P R E M O N I T I O N S

of Nature, continued he, (raising his right hand and gently drawing the back of it across the youth's eyes) my greatest comfort on Earth, has been in the study of his works. When bleeding distress intruded on my solitary eyes, with her melancholy scenes; when the sorrows of a father, of a husband, of a friend, began to attack my heart, it has ever been my happiest resource to turn my thoughts to the wonders of Creation. There my own nothingness was lost. I forgot the wretched individual in the grandeur of the whole. I was

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**P R E M O N I T I O N . vii**

persuaded that vanity alone could give such importance to the sufferings of an Atom. I felt, on casting my eyes round, a mind within me that could be happy, independently of the body. I found a comforter in every flower, in every shrub, in every mountain, in every flood, in every cloud, in every body that rolled beneath the canopy of Heaven. I felt I had that within me that could traverse the vast expanse ; and, whenever the ties of Nature galled, my mind habitually shifted from the affliction,

viii P R E M O N I T I O N.

and soared to contemplate the works of Omnipotence.

But, my dear youth, as the worship of the Author of Nature, tho' ever simple as himself, and always productive of serenity and joy, has too often been offered to poor mortals in the horrent garb of repulsive severity, or beneath the mysterious veil of impenetrability; so has the knowledge of his works, obvious in themselves to the eyes of all mankind, been transmitted to the world, clouded in darkness, embarrassed with difficulties,

P R E M O N I T I O N . ix

culties, and perplexed with asperities.

It is this observation, that I now desire you should never lose sight of.

Science, my young friend, is nothing but knowledge. To know is but to think; and think we all must, whether we will or will not. But mark me, I speak of real knowledge, not the knowledge of words and of forms. This last is the Science of Schools, and of those myriads of great men whose voluminous works you will find society oppressed with, when you leave these



X PREMONITION.

these shades, and become a member of it. God forbid, that your clear mind should ever be obscured with science of this nature! Sectaries in knowledge have much the same disposition, as Sectaries in religion. If what they offer to mankind be beyond their comprehension, as they cannot explain what they do not conceive, they lodge their ignorance in a fortress of terms, that baffles all the efforts of human understanding. If the knowledge they possess appear too easy of access, their vanity takes the alarm, and, rather than be understood



stood by the vulgar, they choose not to be understood at all.

This obscurity has been, in a particular manner, the fate of the science which we have been pursuing in these blissful haunts. The study of the Heavens and the Earth requires a mind of fine and enlarged feelings: but with this qualification alone, you will soon compass what we are permitted to know of the wonders of the Creator. Let a man endowed with such a mind but open his eyes, and, on short reflection, he will as assuredly know that the Earth is  
not

## xii PREMONITION.

not a flat surface, but a round body, as the simplest Shepherdes, on making use of her understanding, is convinced that the face she so eagerly examines in the smooth fount, is not the face of another self, but the reflection of her own. We see a Star in the North, apparently fixed in one spot, while all the other Stars of the hemisphere appear to go round in portions of greater or lesser circles; the consequence from this, that the Earth has a daily motion round its own axis, one end of which is ever turned to the North,

is

P R E M O N I T I O N. xiii

is as easy and evident, as, that if a fly placed on the circumference of a wheel always sees successive points flitting over its head, while one same point remains invariably fixed opposite the end of the axle-tree, the wheel and the fly must necessarily have a circular motion. It is thus throughout Nature. On those who love her, she bestows reflection, and reflection is the master-key to her secrets, if those charms be secrets which are spread out to innocent curiosity, and sensibility refined by diviner motives.

Saying



#### XIV PREMONITION.

Saying this, he took from beneath his pillow the subject of the Views now presented to the world. Take, added he, take, my dear youth, these papers, which oft have been wet with my tears. Peruse them often, and at a riper period do the subject more justice than the sorrows of the unfortunate MARCO have allowed him to do. But, O my dearest child, remember your poor departed Mother ! Draw a veil over the weakness of the unfortunate Phœbe ; soon you lost her, after you had found her ; but my son will be your Father.



P R E M O N I T I O N. XV

Father.—While he spoke, the youth hid his face on the couch, and strong sobs bore witness to his grief.

MARCO, soon after this, expired ; and the Editor is now endeavouring to do honour to his and to the memory of a luckless but ever-adored Parent.

April 2, 1789.

C O M E.

Father.—While he spoke, the youth hid his face on the coach, and strong sobbings writhed to his grief.

Marco, soon after this expired; and the Editor is now endeavoring to do honor to his and to the memory of a husband but ever adored.

Parent.

on the 10th of April 1878

April 1878

the 10th of April 1878

the 10th of April 1878

the 10th of April 1878

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## COMETILLA;

### VIEWS OF NATURE.

**T**HE unthinking Cometilla knew not the value of her Curio till she lost him. Two long summers had now run over her head, and she never yet met with one, whose delicacy of manner, and elegance of conversation, could do away the impression he had imperceptibly made on her mind.

One evening, fatigued by a recent scene of giddiness, she withdrew, all alone, from her father's villa, towards  
a neigh-

a neighbouring wood, to indulge a momentary contemplation, so much the more pleasing to her, as it had been unusual. The half of the sun's orb was setting among the trees. The eve was still, the heavens serene, and there was just as much light as threw off the dreariness of shade and solitude.

"Good Heaven!" exclaimed she, extending her arms and casting her eyes all round her, "is it possible I should experience so much pleasure, where so little is generally expected? Why does that wild note go so home to my heart? Why does the trembling of those leaves soothe and soften my feelings? How is it that this purple shroud where the sun is now sunk, this blue canopy above me, that pale moon that seems yet afraid to appear, raise my soul to thoughts so exalted? O  
could



could I be thus for ever, a gay world should never receive me again!"

Cometilla had now arrived at the summit of the mount. Through the trees she perceived something white. Trusting it might be a hut, she made towards it, resolved, if possible, to partake of the habitation and fare.

Long as she had lived in the country, she never, till that hour, had the curiosity of wandering further than the cramped artificial beauties of her father's garden; and now, while she was casting about how to avoid his search, or bring him to countenance her romantic scheme, the woe-worn figure of a man on whom sorrow seemed to have hastened age, stood suddenly before her.

That kind of terror which takes voice away, and deprives the fair of the power of escaping, seized on Co-

B a

metilla.

4 COMETILLA; OR,

metilla. The stranger observed it, and, respectfully approaching her, "Lady," said he, "recover yourself: you have nothing to fear from a poor cottager. I am master of that hovel you see glistening through these elms. If you have strayed from your company, honour my mansion the rest of the night. You will find a mistress in it, happy to serve you, as much as it is in her power: and, on the morning, we will conduct you to whatever outlet of the wood leads to your home."

Cometilla, bending over his offered arm, followed him through the thicket.

A cottage elegantly simple, the thatch secured by imbowering elms and oaks, and its white sides chequered with contending ivy, honeysuckle, and jessamine, converted Cometilla's  
dread

## VIEWS OF NATURE.

dread into a sense of delight, heightened by admiration. A young woman, beautifully fair, on hearing a noise, ran to the door, and seeing Cometilla led by Marco (for such was the name the cottager chose to be known by), with a countenance sweetly modest, and open though respectful, welcomed the fair stranger to her hut.

The women entered, while the decent Marco bowing, withdrew to finish the usual meditation of his happy evenings.

During the absence of Marco, Cometilla became acquainted with the characters of this happy couple, but not with their history. Phœbe (for this was the name of her amiable hostess) seemed desirous to wave that subject, and Cometilla did not urge it. They conceived an immediate esteem for each other, and agreed,

**COMETILLA; DR,**

that, if Marco consented, they should never more part. On his return he was delighted to observe this sweet union of hearts, and, before he retired for the night, he lovingly begged Phœbe to inform Cometilla, that they only lived thus solitary for the purpose of studying the wonders of nature, and that if she meant to make a third, she must submit to fall in with their quiet contemplations.

**VIEW**



## VIEWS OF NATURE. 7

### VIEW FIRST.

**I**T was now morning, and Phoebe and the sun rose together. Marco had been up with the dawn. The previously appointed view of this morning was to be taken from the top of a contiguous hill. Cometilla, with all that eagerness that novelty excites, was up to enjoy a sight she never before had seen.

The delighted pair repaired hand in hand to the hill. Marco was there to receive them. His countenance, this morning, had less of sorrow in it than the preceding eve; and Cometilla met some features in it that almost alarmed her heart. Before she had time to examine the sensations she felt, he amiably ran to meet them,

8 COMETILLA, OR,

and placing them on a bank of moss, he sat himself down betwixt them.

Phœbe, whose thoughts were now occupied on the gratification of her newly-acquired friend, turning to Marco, and gently addressing him, "My dear protector," said she, "will excuse me, if I beg, that, instead of continuing his observations on nature, he will, for the sake of the kind Cometilla, resume them from the beginning." Cometilla thanked Phœbe for the hint, and seconded it; and Marco, bowing assent, thus began:

"My Phœbe must beg our Cometilla will forgive me, if I frequently trifle with her understanding, by supposing her ignorant of many things she must be mistress of. The observations you are civil enough to attend to, are obvious to every eye; but still the more easy must precede  
the

VIEWS OF NATURE. 9

the more intricate. Indeed, my sweet friends, I should not use the word, for whoever is blest with eyes, has only to make use of them, to become great in the knowledge of nature.

"The first time her volume was opened to me, was on a morning like this. From the top of this very hill it was that I threw a look towards that furthest wood, that was then just edged with a golden lining of the sun's first ray. He rose at last above that tallest tree, that, from this, seems to occupy the center of the wood. The inspiring silence of the morning crowded my soul with thoughts of the sweetest kind. Indeed they were then so to me, who, till that hour, had a mind darkened with thoughts of a very different hue. Where has this bright body been? By what contrivance does he thus slope the heavens,

10 COMETILLA, OR,

heavens, and top the sky archways,  
with redoubled heat and splendor?  
See, how all the attendants of night  
gradually disappear or sink from his  
presence! Nature wakes at his call:  
and now, by the help of his far-  
extending beam, I observe all round  
me the loveliest scene of variegated  
beauties. As the landscape and cir-  
cumstances are the same, mark, my  
sweet friend, that ring of hills, woods,  
downs, heaths, spires, vallies, lawns,  
around you: they seem to run round  
us in a circle as perfect as that formed  
by the girdle you wear. What is  
this circle? If you'll observe, Co-  
metilla, the canopy of the sky stoops  
to inclose it, and here we three are  
lords of the pavilion, since we oc-  
cupy the center. The sun is now on  
our right, and his rays throw our  
long shadows to the left. By and by  
he



VIEWS OF NATURE. 11

he will ascend at our backs, and throw our short shadows before us: and then he too will stoop to this ring, and, before he sinks under it, will cause our long shadows to run to the right. You have observed, Phoebe, he does so every day. This remark, Cometilla, made me repair to this hill the ensuing night. The moon was almost full, and I perceived she too rose from this ring, mounted, and was at last hid under it, following much the same course as the sun had done the preceding day. On a third night, I fixed on a very large and bright star, that had that moment risen above this ring: and I was now so fond of my infant observations, that I gave the whole night to see it too mount to the top of heaven, stoop, and disappear. I at last found  
that

12 COMETILLA; OR,

that every star above me had the same allotted course.

This ring or circle I thought should be attended to, for I see my day and night depend upon it. It prescribes every star in heaven the race they have to run, and bounds my view so effectually, that I neither see whence they rise, or whither they tend. A few more observations led my mind into new scenes, and opened it to the beautiful contrivance of nature."

Here Cometilla, interrupting Marco, wondered much how he could go through the fatigue of watching, and support the inclemencies of night.

"Fair Cometilla," replied Marco, "desire and love are the most absolute of all masters. I continued to observe,

serve, without once attending to what I felt; and I grew at last so charmed with my new study, that I had a neat observatory built on that very hill, a little beyond that tuft of trees, on a small peak, where the sight round is unembarrassed and free. To-night, if you can find a pleasure in it, we will all three pass a few hours there."

Cometilla and Phœbe witnessed their satisfaction at the proposal, and Marco continued his view.

"It was natural enough, that, as I had observed the sun kept a regular course of his own, every particular star might have one too. I accordingly looked, one night, towards the south, and pitched upon a star, the furthest I could find from the places where the sun rose and set. I could discern that it appeared for a little time grazing the circle, but never  
rose

14 COMETILLA; OR,

rose above it, and at last vanished. A group, somewhat more to the right, did rise above the ring, but made a very small arch, and then they too went down. A second group, half way betwixt the south and the place where the sun rose, made a much larger arch, and took longer time to go down. Those stars that ascended where the sun did, made the largest sweep, betwixt that point and the south; but when I turned my face to the north, the stars made still larger arches when they rose above the ring, till at last I could plainly distinguish some, that did but just touch the circle, mount to the top of heaven, and then descend, and touch the circle, and then mount again, without ever disappearing. Others, higher than those, made complete circles in the sky, without touching the ring;  
till



till at last I observed one that scarce seemed to move from the point it was stationed in. The rest wheeled round this, and in the course of my observations, I found this general race of the heavenly bodies was done in one and the same time; twenty-four hours, or thereabouts.

"And now, Cometilla, had you been in my place, what conclusion would you have drawn from these observations?"

"One that has struck me for these two or three minutes past," rejoined Cometilla, smiling; "and that is, under your correction, Marco, that all the heavenly bodies together, sun moon, and stars, move in arches from the east to the west."

"Well but," said Phoebe, "my dear Cometilla, might you not have said that they all move in *circles*; for

Marco's observations prove, that the stars which never vanished performed their course in circles?"

"That's a happy thought of yours, my Phoebe," replied Cometilla, "we may judge of things unseen by those that are seen." "In examining nature, more particularly," rejoined Marco. "And now, if you please, I shall tell you the inferences I drew from my observations:—but the sun gets to a height, and it is now about the time of our morning's repast, so, with your leave, my lovely friends, we shall betake ourselves to our cottage."

They rose, but as they were descending the mount, each hanging on an arm of Marco, they saw, in the vale below, a boy extended on the brink of a living stream, in the posture of quenching his thirst in the cool rill.

rill. On a nearer approach, Cometilla, starting back, alarmed her two friends. "Good Heaven!" said she, "it is my father's servant; he has been sent in search of me." Marco was at first irresistibly discomposed, but soon checked the emotion, and, turning to Cometilla, "My lovely guest," said he, "suffer me to meet and give him an answer, while Phoebe leads you to her arbour."

"You are all goodness," replied Cometilla, the tear starting in her eye, "but O ease the pangs of my family, by telling the boy, that Cometilla is well and happy."

Phoebe and she then darted into the wood, and Marco went towards the rivulet, which the servant had now left, advancing towards the stranger he saw approaching.

C

VIEW

## VIEW SECOND.

**M**ARCO returned, and the contented three had now been seated in the arbour that shaded one end of the cot, for above an hour. The subject over their light repast had been Cometilla and her family; their search, and her escape. Marco, at intervals, seemed lost in thought; and Cometilla frequently, and unexpectedly, caught his eye starting from her. At times, she herself was pensive; but Phoebe, by the appositeness of her remarks, and her innocent inattention to the secret workings of the heart, generally brought them home to their pleasing views.

Marco, fetching a deep sigh, and seemingly rousing himself from a train  
of



of ideas, of a far other tint than those of their favourite study, turning to Phœbe, said, "The sun is high, my dear, and the heat too powerful. If it is agreeable to Cometilla, what I promised, on the hill, I shall perform in the arbour." Both gave signs of assent, and Marco thus modestly imparted the inferences of his observations :

"Previous to my remarks on the hill, I had often, during my travels (here Cometilla visibly changed colour) observed, though without then paying any attention to it, that, if I journeyed in the night, any one star that I chose to fix upon, rose higher and higher, as I travelled from south to north ; but that the same star lowered in proportion as I went to the south from the north. Recollecting this circumstance, and combining it

20 COMETILLA, OR,

with that of every star rising above the ring, then mounting to heaven's height, and at last setting; then re-appearing, and uninterruptedly performing their several courses, either in arches or in whole circles, I conceived, with scarce any effort of imagination, that the earth I stood upon was round, and that all these bodies went round it: for I have often placed myself on one side of the broad brow of that hill that runs along the shore, while Phoebe, leaving me to cross the summit, has gradually lost sight, first of my legs, then of my body, and, at last, has seen nothing but my head, which, by degrees, totally disappeared as she descended the mountain; and if she went round it, she has observed other objects rise, as she lost sight of me, in the same manner as some stars disappeared

## VIEWS OF NATURE. 21

appeared in the south, and rose as I advanced, or rather went round the great descent of the earth, towards the north. The ring too, every where preserving its circular form, convinced me I was right : for place a fly on an apple, it will run round without fear or stopping, because it ever sees a circular boundary around it, that offers no sudden change to dread a fall ; but place the same on a table, it stops when it comes to the extremity ; because then the ring round is broken, and proves the table not to be a round body, as the apple was.

“ One inference drew on another ; and now, satisfied that the earth must be a round, or solid ball, I had a glimpse why some stars grazed the ring to the south, while others, to the north, went round in full circles, and some, in the middle, performed only

half a circle of their course. I soon judged that, since the heavens went round, and the earth was a ball, there must be some middle spot of this ball, where, if I stood, I should see all the stars make half circles over my head, some smaller, some larger. I thought too, that if I was carried to one end of the ball, I should see one half of the heavens go round my body, while the other half of the ball concealed the other half of the heavens below me : and thence I concluded, that I stood neither on the middle nor the end, since I saw some stars make full circles, others only touch the ring, and all of them performing their course in a slant manner, neither flatly round my body, nor directly over my head."

" But," said Cometilla, interrupting him, " you have told me two or three  
three



three times, that all the stars, you observed, went round you; yet, if I am not mistaken, you before mentioned, that the circles they made dwindled away towards the north; and that there was one which never went round, or at least seemed to stand still." She was then silent, and blushed, fearing the interruption was not pertinent.

Marco, venturing to take her passive hand, assured her it was a pleasure to be wrong, to be set right by a judgment like that of Cometilla. Her colour deepened, and he thought it safer to answer her question than her looks. "That very circumstance, lovely Cometilla, was the source of a new discovery and of much reflection: for, as I did not think it tallied with reason, that the whole host of heaven, as a divine author

nobly expresses it, should be subservient to, and go round our earth, I imagined, with no great stress of fancy, that the earth, by turning on itself, might, with much more ease, produce this effect: and I had always heard, that nature never acts by complicated, when she can by simple means. What led me to this reflection was, that turning round myself, I could successively see every object all round me; and that it would be as unnatural for every individual tree to turn round me, in order that I might see it, as it would be for every star in heaven to turn round the earth, instead of the earth turning on itself.

“But the immobility of that star in the north gave me full conviction of what I, at first, only suspected. For, if all the heavenly bodies had a circular

cular motion of their own, the circles to the north would be as large, or appear larger than the rest, instead of diminishing; on account of the infinite void in which they roll: whereas if the earth revolves round itself, the revolution will be perfectly similar to that of a wheel round its axle-tree. Now, as the axle-tree does not move circularly, though the wheel does; if it were possible to be placed on one end of the axle-tree, during the turning of the wheel, you would for ever see the same object before you; but on the wheel you would certainly suppose every object going round you, or passing over your head. Thus it is with the great wheel and axle-tree of the earth. If we look at the object, or star, that is opposite the end of the axle-tree, it must of necessity appear motionless; but if we observe  
the

the objects above the wheel, or body of the earth, they must necessarily appear in that kind of motion that our revolving globe gives them.

" In a word, lovely Cometilla, I drew all my observations within the compass of a few words, for the purpose of recurring to them as future exigencies might require:—that all the stars of heaven, but one, moving round the earth, in the course of four-and-twenty hours, proved the earth to move round its own axis, in that space of time: that new stars appearing, and old ones disappearing, as I travelled from north to south, convinced me the earth was like a globe: that since there was one star motionless, at one end of the axis, there must undoubtedly be some point motionless at the other end of the axis; that consequently



VIEWS OF NATURE. 27

the stars that rise over the middle of the earth must ascend perpendicularly; that the bodies which rose betwixt the end of the axis and the middle of the globe, appeared mounting assant; and that, if we were placed on the end of the axis, the stars would never rise or set, but perpetually go round us, except that one alone which shone directly above our heads, in the summit of heaven: that the greater the arch was made by a star, the longer we should enjoy its light; and that the lesser the arch was here on this side of the globe, the greater would it be on the opposite.

“ But now, my sweet companions, the shadow of the dial before the door of our hut points out noon. Observe the sun. He is now in the meridian of his glory. He has performed one half of his course above the ring, or rather

rather our ball has turned round, till the spot we are on has, at last, come under him. The short shadow of our cottage is now to the north; we who are sitting in the harbour look to the east; and the hill we took our first view from, lies on the western point of this tranquil scene. What an enthusiastic listlessness hangs over the panting landscape! Nature is silent. She owns the immediate presence of summer's lord; and spreads this thick foliage around her children, to screen them from his too potent radiance. My dear Phoebe, lead our Cometilla into our cot, to prepare, and partake of the wholesome fare that nature has poured round us. Meanwhile I shall range the wood, which has long been our orchard, to gather what may cool the parched palate, and relieve nature, exhausted by heat."

V I E W

## VIEW THIRD.

**T**HE mild eye of eve was now open, and the purple sun had ceased to dazzle nature. The sweetly social Phœbe had withdrawn to arrange the little matters of her cot. Marco had been some time gone, to prepare for the new study of the night, in his observatory; and Cometilla, happy in an hour to herself, plunged into the wood, to indulge reflections that now fondly crowded on her mind.

“Fortunate creature,” said she to herself, “who have thus wandered into the bosom of felicity! How sweetly does my soul relish this life of innocence, this heaven upon earth! Who can this godlike couple be? With what glow of friendship does the dear  
Phœbe

30 COMETILLA; OR,

Phoebe catch me to her heart! But how attracting, how generous, how excellently great, does the other appear in my eyes! What can they find in me, to be thus lovingly attentive to me? What shall I do to deserve their esteem, or repay their love? O, if they will but suffer it, I will for ever live with them, work with the sweet Phoebe, and, with her, eagerly catch knowledge from the divine lips of her Marco!"

She was still speaking, when an alarmed bird precipitately flew from a beech she had just brushed by. Cometilla, whose mind was wholly impressed with Marco's recent observations, went to the tree, and found a nest full of unfledg'd young. "Dear creatures," said she, gently holding her head over them, "how cruel have I been to disturb you! But still  
more



more cruel your mother, thus to leave you, at the chance of never again finding her nestlings: for," continued she, drawing her head from the foliage, and replacing, with both hands, the boughs around them, "if Marco's observations are just, the earth and the tree will go on, and the mother bird will never again find out her young ones." This sudden thought distressed Cometilla; and, as her mind was now opening to every incident in nature, she observed a branch break from the top of a lofty oak, and fall directly at the root. At the same moment, turning round at the noise of a foot through the underwood, she saw her dear Phoebe advancing towards her.

"My little concerns are settled," said Phoebe, embracing her, "and I have instantly run to every tree and  
 arbour

harbour round, to look for my kind Cometilla."

"Welcome to my heart, my love; I just stood in need of you," said Cometilla. She then related the circumstance of the bird and the branch, and seemed to long for Marco, in order to have her doubts cleared up.

Phoebe, who, through modesty, had not yet urged any thing of her own, in a manner delicate and unassuming, begged Cometilla would allow her, as Marco was absent, to give the very answers she had heard him make to similar objections.

"While the earth rolls on its own axis, in the course of twenty-four hours, there is not a particle on its surface that does not partake of its motion from west to east; so that the tree in which you found the nest, went round in the same time, and  
not

not only that, but the whole body of air around us preserves the same motion. The mother bird, in leaving her young and the tree, kept the motion which the tree communicated to her, and the earth to the tree: so that at the same time, by a double motion, she went round with the earth by communication, and flew where she chose, by strength of wing. In a word, my Cometilla, it is as easy for the mother bird to find her nest again, as it is for a passenger to find his place in the ship's cabin, after having been to breathe a little fresh air on deck; for, you know, all this time the ship continues going on the water, while the passenger, by a motion of his own, is going to and from deck. You may say the same thing, Cometilla, of the branch that fell from the top of the tree; for, as the earth gives

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34 COMETILLA; OR,

its motion to all things on it, the branch will go on with the earth, and at the same time, by its own weight, fall at the root of the tree."

"But," rejoined Cometilla, "on this principle of Marco, it is literally impossible that an arrow, shot from west to east, should ever hit the mark: for if the earth turns from west to east, the mark placed towards the east will fly off with the earth, while the arrow, shot from the west, must fall before it arrives at it.—But now I reflect, Phœbe, the same answer will do for this as for the bird. The earth, no doubt, communicates its motion equally to the mark and to the arrow, and then no doubt but the force the arrow received from the arm, will send it home to its aim."

"And what answer would my Cometilla give, if the arrow was sent  
4 from



from the east to the west? Then it appears that the mark will fly to meet the arrow, as the earth turns from west to east."

"The same as you gave before," replied Cometilla, "for though the arrow be sent from the east, still it has the motion of the arm that shot it; so that both mark and arrow are equally carried towards the east from the west, and that force only which threw the arrow, remains to bring it to the butt. But the allusion to the ship you just now made, my Phoebe, is much the neatest illustration of the earth's turning round itself. I have very often, on board, amused myself with observing the trees and houses, seemingly moving in a contrary direction, by the real motion of the vessel: and, on shore, I have seen a ball drop from the top of the mast, and form an

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arch,

arch, as it descended, instead of a straight line; while those who were in the ship thought it dropped perpendicularly down. No doubt the reason was, that the motion of the ship, which the ball still retained, urged it onwards, while its own weight pulled it down; in the same manner as when I throw an orange in the air, it makes an arch; because the motion received from my arm would send it forwards, if it were not, every instant, pulled down by its own weight."

"My dear Cometilla," said Phœbe, smiling, "nothing can be more clear than the idea you have now conceived of the earth's motion round itself, and the motion it communicates to the bodies on its surface."

"I am almost satisfied on these points; but, Phœbe, have you not observed, that when a coach-wheel

turns round, though it cannot revolve with the velocity that the earth does, yet it throws rapidly off the small particles of dirt it gathers on its circumference? Now, how does it happen, that when the earth turns round, houses, spires, rocks, towns, cities, still cling to its surface, and never fly off into the vast void?"

"Why, my dear, I have heard Marco say, that their own weight to the surface is much greater than that uniform motion which carries every object smoothly on. Besides, the great globe of the earth is so large, when compared with every object on it, that the motion becomes imperceptible, when distributed to every respective body.—But see, my sweet friend, the sun has got so far beneath the ring, that, one by one, the lamps of heaven begin to illumine the divine

38 COMETILLA; OR,

scene of night. The lonely nightingale has now got possession of his favourite spray, and tries the first strains of his piteous song. I just now heard the bird of wisdom usher in the gloom, with a tone of rude sublimity. Don't you hear the drowsy murmurings of a distant brook? Every tree whispers silence: every star twinkles with joy to perform its destined course. The moon, now brighter, sits arbitress of the still picture, and not even a wing disturbs reposing nature. Through those trees, Marco's signal, my dearest Cometilla, calls us to his observatory. Come, my fair companion, and, for the first time, enjoy with us both, the silent grandeur of heaven, now adorned in all its fable glory."

V I E W



## VIEW FOURTH.

**O**N a clear wing of the happy hill, nature had thrown a wild groundwork of level rocks. Their green sides, down to the mountain's brow, were drest with interspersed box and old holly, that grew boldly from the large rifts and moss-covered crevices. 'Twas here that Marco had erected his observatory. 'Twas hence his free mind had traversed the heavens, and took, in narrow compass, the wide work of omnipotence. Two hundred large trunks of topped elms formed a double circumference round the rock, covered with a canopy of arched branches. From the middle of this dome rose a kind of chalice, which he called his Umboné, worked with

40 COMETILLA; OR,

strong roots of large trees. Occasional foldings opened at the top, and threw themselves back in the manner of a divided melon; so that, when a serene sky permitted observation, Marco, with a friend, might sit in the shell of the Umboné, and command the revolving heavens.

Beneath the dome, and within the circumference of the elm-shafts, art and industry contended with nature, which adorned the outside of this extraordinary structure. The cieling all round was overlaid with the most smooth and glossy argil, coloured with vivid azure: 'twas all one concave, without flooring or sides. Like the vault of heaven, 'twas above and below beset with burnished gems, that imitated the stars in due proportion of size and distance: throughout the whole vault there was not one imperfect

VIEWS OF NATURE. 41

imperfect constellation. An enormous globe of polished steel flamed in the center, suspended by two broad magnets, one stuck in the upper, the other in the nether half of the concave. Six other, far inferior balls, supported by magnetic power, some higher, some lower, stood or floated, at will, around this prodigious central body. They too had their attendants round them, sustained by magnetism. The proportions of size and distance were observed throughout. Variegated circles ran round the vault, and pointed distinctly out the heavenly courses; while within this sky in miniature there was no other path for a spectator, than a narrow walk, or kind of terrace, that stuck from the vault, ascending and descending north and south, around the whole beautifully-contrived system.

In

In the gallery that encircled the Umboné, were severally placed the various instruments that prior art, and his own discoveries, had formed and collected. A winding ascent, cut into steps, upon the old rugged trunks of intertwining box, that grew close to his woody pilasters, led, first to a Gothic door that opened into his system; and then continued meandering across the outside of the dome, till it reached the entrance of the Umboné. There every convenience of repose and refreshment satisfied the enraptured stranger, while the wide prospect of the heavens round fed imagination, and raised every faculty of the soul.

The fair couple had now reached the summit; and Marco, who had all this time been lost in the heavens, appeared, of a sudden, from behind  
a low



a low tuft, that led to the serpentine stair-case of his fanciful Umboné.

"Forgive me, lovely visitants of night," said he, hastening towards them, "forgive my absence. I have been endeavouring to prepare future pleasure for our Cometilla. I have imparted to this amiable companion of our solitary felicity, the few observations that naturally flowed from my first glance into nature: and now 'tis my wish to proceed in the kind of system my mind had made up to itself."

With this, he conducted his fair companions over the dome, and, without yet shewing Cometilla his little heaven beneath, he placed her on a settee, betwixt Phoebe and himself.

After her first expressions of surprise, created by a survey of the outside of the romantic pile, Marco, carrying

carrying his hand all round him, thus proceeded :

“ This ring, that first drew my attention, I, for the sake of distinction, named the horizon, or boundary of my view : the circle in which I should, for the future, place the four points of heaven, east, south, west, and north : the circle that should determine the rising and setting of every celestial body : and, in a word, divide the concave of heaven into two parts ; the visible above me, and the invisible below.

“ As the sun and stars rose gradually to a highest point in the sky, I called that point the mid-day point, and through it, over my head, I drew, in fancy, a large circle round the globe, and I called that the meridian : so that all those who, on earth, lived under that line or circle, should deem it mid-day  
when

when the sun had attained to it above their heads, and midnight, when he arrived at the other half of it, on the other side of the globe of the earth, as I supposed it to go all round.

“ The point in the heavens near the star that scarce seemed to move, I named the pole; and, as one pole, or extremity, supposes another, I called the line that pierced the center of the earth, and went from one pole to the other, the axis of the earth. Now, Cometilla, every axle-tree, or axis, has a wheel, or a middle circle, which, on a globe, is the largest of all its circles: I therefore supposed in the heavens, right betwixt the two poles, a large circle, which I called the equator, as it must, of necessity, cut the ball into two equal parts. Thus I formed three imaginary circles in the heavens, which afterwards proved of great use  
to

46 COMETILLA; OR,

to me : for as the horizon served to distinguish day and night, and the rising and setting of all the heavenly bodies, so did the meridian point out the middle of the sun's course, the four cardinal points, and the mid-day height of the sun throughout the seasons ; and the equator, pointing to the east and west, shewed also, by sinking or rising, how far I had got to the north or to the south pole.

" Now, my sweet friends, if you will stand up, you may easily understand what I mean by these circles of fancy. You can have no difficulty in observing that ring around you, which I have called the horizon. If you look, Cometilla, over yon distant wood, there is a bright star now springing from amongst the trees ; observe it well, and, in the course of some minutes, you will see it get clear



clear of the wood, and sail on to the west, as the earth rolls in a contrary direction to the east. Observe the point over that faint light, so very distant from us, and directly south. There is there a group of small stars that seem struggling for an ascent; yet, if you remark them, they will make a short stay almost in the same point they are now in, and then disappear, since the roundness of the earth throws us off from seeing the full circle they make.

“ But turn round to the north. You may there observe a curious figure, formed by seven or eight stars, almost in the form of a plough: four of them make a kind of square: through the two last draw a straight line, about the length of the plough itself, and it will, at last, reach a solitary star, which, from its vicinity  
to

#### 48 COMETILLA; OR,

to the pole, I have called the north, or the polar star. Opposite to this there must be, in the heavens, a south polar point, or star; and every one of these points and circles above, have their corresponding point and circle on the face of the earth, so that all seem to have one common center, which is the center of our globe. Now all these great circles cannot have one common center, without being in proportion to each other: my meaning, Cometilla, is, that if the sun, for instance, goes through a twentieth part of his daily circle, in the heavens, he will, at the same time, seem to pass over a twentieth part of that circle marked or conceived on the earth: and if any star should run through only a small portion of a heavenly circle, it will pass

pass over a small portion of that circle marked on the earth.

" This idea led me to think I might find out some kind of relative measure, to compare their courses with each other; or convey, in a general manner, the points they lay in, with respect to each other.

" Accordingly I bethought me, that if I should suppose the horizon, for example, divided into a considerable number of parts, I might, neatly enough, point out the spot where any object lay, by intimating how many of these parts lay betwixt it and another: or, if I wished to make known how high the sun was above the horizon, I should only tell the number of parts that lay betwixt its center and the horizon.

" I found, on reflection, that it was immaterial into what number of

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parts

50 COMETILLA; OR,  
parts it should be divided; so, consulting my own ease, I fixed upon three hundred and sixty, as that number is the most easily and accurately divisible of any other. It was now therefore settled in my own mind, that every circle, great or small, should henceforth be divided into three hundred and sixty parts; consequently the parts of a small circle would be equal in number, though not in size, to those of a great circle: as a small orange may be divided into halves, or quarters, as well as a large one. This you easily perceive, Cometilla, did not give me any real measure; but still it was settling, in my own head, a comparative distance betwixt every object in heaven. For instance, that star in the summit of heaven rose in the east point, and as it has now run one quarter of its circle,



VIEWS OF NATURE. 51

circle, I may convey that idea, by saying, it has run the fourth part of three hundred and sixty, or ninety parts. That other star, directly in the middle betwixt it and the horizon, has run the half of ninety, or forty-five parts. That star you see in the south, and that light you observe in the east, are one quarter of the horizon distant from each other, or ninety parts of the three hundred and sixty into which I divided it. This little scheme of my own, Cometilla, was of the greatest importance to my future observations.—But a chill, dewy gale seems to warn us of the early hour. As it is the first time our Cometilla has kept watch with the heavens, we must, in pity to our lovely novice, refrain from further observation this morning, and, ere the breeze

52 COMETILLA; OR,  
blows too cold, betake ourselves to  
our warmer cottage."

It was not without reluctance that Cometilla was persuaded to return. She had not yet seen the contents of the dome below, and her curiosity, now heightened by an eager desire of knowledge, made it painful for her to depart.

The rolling heavens had now made two thirds of the nocturnal arch. The beams of every star assumed a paler hue. The first threads of blue dawn ran on the orient rim of the horizon, and now and then an impatient warbler disturbed the dead silence, when the little society had arrived at their hut, to make up for the watching of the night, in the arms of sleep, and under the wings of approving Heaven.

V I E W

VIEW FIFTH.

**W**HEN the springs of knowledge are once unlocked, how eager is the human mind to drink deep of that source, the access to which has now lost its difficulties and terrors!

A short slumber had already relieved Cometilla, and with anxious pleasure she rose, to read in the great volume of nature, of which she was now become enamoured.

Marco and Phœbe, delighted with her ardour, agreed to return that morning to the hill, pass some time in the observatory, and bring Cometilla acquainted with its internal beauties.

While they were ascending the mount, the sun had been about an

hour risen; and Marco, signifying this to Cometilla, begged her to let him know how many of the three hundred and sixty parts he had divided every circle into, she thought, were then betwixt the sun and the horizon?

"That will be but miserable guess-work," says Cometilla, smiling; "the circle is much too large, and we are much too little, ever to know any thing of the matter."

"That's cowardly, my love," said Phœbe; "I would not give it up without an attempt. Nature will never open the conversation. She is mute to those who do not study her, and is never easy of access but to those who attack her."

"Well, Phœbe," said Marco, "be you the aggressor this bout; and, as you lately have been upon more familiar



miliar terms with that lady than Cometilla, let us see if you have forgot how to attack her yourself."

"You are hard upon me," said Phoebe, shaking her head, "but, if I mistake not, you have already furnished us, Marco, with a means of getting over this difficulty. Every circle, great or small, you told us, is divided into three hundred and sixty proportional parts: now, if I can make that circle in the heavens, which the sun is now performing, agree with some small accessible circle on earth, it will then be very easy for me to reckon how many parts there lie betwixt the sun and the horizon at this moment. My mind has already, more than once, been at work for this discovery; and, if you will not rally me, I will communicate to you the stratagem I have had recourse to.—This then is

it," said Phœbe, smiling as she took her fan out of her pocket, opening it to its full extent, and placing the border of it directly beneath the circle the sun was then describing.

"If this fan," continued Phœbe, archly examining the looks of Marco, which were, with evident gratification, fixed on the ground while she spoke, "If this fan were quite round, I mean if it formed a complete circle, it would answer to the circle above us in the heavens; but as it is only a quarter of a circle, it can but correspond to one quarter of that above us: however, as this quarter extends from the horizon to the point exactly over our heads, my fan, I should suppose, will do well enough to measure that portion of the celestial circle. This is the manner, whether good or bad you must tell me, Marco, in which I pro-

proceeded. There are in this fan nine sticks: I supposed each of these divided into ten parts, which I took the liberty of calling degrees: by this division, my fan contained ninety, or a quarter of the degrees that constitute an entire circle. I then placed me, on a still clear night, opposite to the moon, which happened to be somewhat more elevated than the sun now is. I directed the lower stick of the fan as accurately as I could towards the distant horizon, so that the upper stick stood quite erect, and pointed to that part of heaven which was then over my head. In this position, my fan and its nine sticks corresponded, methought, pretty well with one quarter of a circle in the heavens: then, placing my eye to the nut of the fan, and looking forward to the moon, I found her, as near as possible,

possible, answer to the fourth stick: that is, that the moon, at that instant, was as far above the horizon, as the fourth stick of my fan was above the lowest stick, which I had previously levelled to the horizon. Now, as I had pre-supposed that every division of my fan contained ten degrees, I concluded that the moon was then four times ten, or forty degrees, above the horizon."

This fancy of Phœbe was followed by one of the sweetest blushes that conscious ingenuity could call up in her lovely countenance. Marco observing it, and willing to relieve her, took her trembling hand in his, and said, "Thou interesting partner in my solitude and study! thou communicatest thy own soft features to that science, which the world suppose shrouded in frowns and repulsive horrors.



horrors. I am sure thou must have convinced our Cometilla, that she has nothing now to dread from difficulties which vanish at the flap of a fan."

They were, by this time, at the entrance of the observatory, when Marco, begging Phœbe to lead Cometilla to the Umboné, 'till he came to them, stepped into his favourite resort.

The fair couple seating themselves, Cometilla, with a look of inquisitive interestedness, turning to Phœbe, said, "You are very happy, my love, that you have had such a master; and, I believe," added she, sighing, "he is as happy in his lovely pupil. " Indeed, you seem made for each other. Be not displeased with me, if I envy your penetration, and his care. " I love you ——" both, she was about

to say—when Phœbe rising, and throwing her charming arms round her, said, “Dearest Cometilla, I am happy, more happy than I once thought it was the lot of an earthly creature to be : but Marco is not the source, he is only the means, of my happiness. By him, solitude and nature have displayed charms to a heart, which once, my Cometilla,” ———

Here Phœbe stopped, sighed, and was hindered from proceeding by the presence of Marco, who at that moment, with a chearful countenance, entered the Umboné, holding an astronomical instrument in his hand.

Cometilla did not well know what to do with her eyes ; Phœbe seemed evidently affected ; and Marco, who instantly perceived their embarrassment, felt the blood rushing back to his heart. He dreaded a discovery ;  
and,

and, desirous to avoid any subject that might lead to it, he, with an assumed inattention to their situation, taking Cometilla by the hand, which trembled like an aspen-leaf, begged her and Phœbe to stand, one on each side of him.

"Now, my Phœbe," said he, "allow me to give you joy: you are as much the inventor of this instrument, as he who first found it. This is nothing else than the stratagem of your fan, brought to the first stage of its perfection: on a future day you shall see it in its utmost perfection. With that, he shewed, and explained, the contrivance he held in his hand; while Phœbe, all the while, could not help betraying, in spite of the melancholy that had been about to seize her, signs of self-content and laudable pride.

The instrument was one fourth part  
of

62 COMETILLA; OR,

of a plane wooden circle. The limb, or border, was divided into ninety equal parts. On the center there turned a narrow slip of wood, which reached from the center to the circumference, with a small sight at each end, so that, by placing the center sight to the eye, and looking forwards through the other sight at the circumference, moving the stick till the object was seen through both sights at once, the height of a heavenly body, above the horizon, might be pretty nearly determined.

“ This however,” said Marco, “ I only shew in compliment to my Phœbe’s ingenuity: this evening you shall see it in greater perfection. And now, Cometilla, every thing being prepared for you in the observatory, permit me to attend you thither.”

The moment she entered, astonishment held her mute. Marco observing



ing it, and fearing lest her surprise might turn into suspicion, at the sight of such costly workmanship and splendor in possession of a simple cottager, he hurried her round the path, and gave her a general view of that little world. At length, pointing to a brilliant circle of inlaid steel that divided the whole vault into two equal parts, and lay sometimes beneath them, and sometimes above them, as they went up and down the sloping path, he asked Cometilla if she knew what circle that was; and intimated a wish, that she should endeavour to exemplify the several observations he had hitherto made.

Cometilla, now more accustomed to the structure, was pleased that her attention was about to be put to the proof, because she thought she was able to satisfy Marco. She little suspected

suspected that science had less to do with her ardour than love.

“That circle,” she replied, “if I mistake not, is situated, with regard to all the other circles I see here, in the same manner as the ring which you made us observe, and called the horizon: it divides every thing I see round me in two; and when I thus stand above it, I think I could measure from it, with Phœbe’s fan, the height of these several bodies.”—“Let us drop the fan, Cometilla,” said Phœbe; “Marco’s substitute has made me ashamed of myself.”—“But,” continued Cometilla, “is not this great circle that runs here over our heads, and goes from top to bottom of the concave, the mid-day, or meridian circle? I see that these bodies which hang round, must all, at one time or other, pass by it, in the same manner

manner as they do by that mid-day circle you supposed to us in the heavens. This other, I think, is the equator; for it lies exactly betwixt that uppermost, and this nethermost point, and divides the long axis, I see, into two equal parts. As for these smaller circles, I must beg you, Phœbe, to let me know what they are; for it will please Marco to see you remember what he has, no doubt, often explained to you."

"My sweet visitor," rejoined Marco, "you have done justice to the opinion I had of your understanding: my desire was only to impress the ideas more deeply upon your imagination. With regard to all these other points and circles, they shall serve for the same purpose, and we shall have recourse to them only

F after

after having studied Nature herself. Fiction may adorn, or exemplify, but never can convey natural truths. Our first operations shall be as wide as heaven itself: we may afterwards, for mortal memory's sake, descend into this little nook, and contract them. Meanwhile, after casting a glance on these two poles you see; after examining how the three fore-mentioned circles cut each other into two equal parts, and how they are inclined to each other, and with respect to the poles, there is one more necessary survey we must make, before we leave this miniature of the world above us."

Saying this, Marco touched a spring, and there instantly rose, from the bottom of the concave a settee, with flying steps, that extended to the pathway:



pathway: he offered Cometilla his arm, who, at once astonished, pleased, and trembling, stepped up with him, and seated herself on one side, while Phoebe placed herself on the other. Cometilla's eyes glistened with delight, when Marco, after having drawn back the steps beneath the fetree, and pointing an ebony wand to the stars that they now saw on all sides round them, thus began:—

F 2      VIEW

## VIEW SIXTH.

**YOU** must, at one time or other, my fair friends, have experienced the pleasure of stealing from company, concealing yourselves in some secluded corner, and rapturously contemplating the splendors of a winter night. Nature exhibits nothing grander. The idea of a summer sun is then divided among ten thousand worlds. The chill air yields to warm enthusiasm. Interminable æther draws on imagination, and the mind sweeps through unmeasurablebleness. Every planet walks forward in steady stateliness. Every star seems trembling with diviner joy; and the whole host crowd the heavens with glory. Nothing but a void can display

display Divinity: and a winter night tells us, that there is not the smallest space of that void unconscious of his power.

“ We will now suppose ourselves, in a frosty and bright evening of the month of January, seated, about nine or ten o'clock, on a commanding eminence, beneath an open sky. Our first view creates a confusion of pleasure and astonishment. The general irradiation elevates, but the seemingly irregular assemblage confounds the mind. Willing to form an intimacy with each portion of these glorious masses, I fixed on some of the most distinguishable groups, and made use of those as heaven-marks, to conduct me through the rest. To every clump of stars, if I may use the expression, I affixed the name that antiquity first gave it. These names, fair Come-

tilla, are whimsical enough, but they are, I doubt, unchangeably adopted. In this survey of ours we will make use of them, but I shall afterwards lay before you the manner which nature prompted me to pursue in classing them together."

Marco then pointing his wand towards the south, thus continued his display of the stars:

"The collection I chose to proceed from, was that large irregular square, within which you may observe three bright stars, placed very near each other, on a straight oblique line; beneath which there are three others, of inferior lustre, hanging from them in a manner. This the ancients called Orion. The two highest stars in this square form his arms; the two lowest, his legs; the three bright stars in the middle are his belt; and



and the three smaller, which hang from them, are understood to design the garment that covers his thighs, or more properly his faulchion.

“ These three bright stars, sometimes called Orion's Belt, sometimes the Three Kings, by their direction point out to us, on one side, Sirius, or the Dog Star; on the other, the Pleiads. Sirius is that remarkable star, distinguishable from any other by its scintillation and lustre. You there see it, Cometilla, on the south-east side of Orion.

“ The Pleiads, or the Seven Stars, lie on the north-west of Orion: they are very easily known, by being so closely massed together. Besides, they are almost in a direct line, from Sirius, through Orion's Belt: they are on the back of another constellation, called the Bull.

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“ That very large star, which you see on a right line, half way betwixt the Pleiads and the star that forms the western shoulder of Orion, is called the Bull's Eye, or Aldebaran, or Palilicium.—The original application of these quaint appellations, to the stars, is of so little import in the science of astronomy itself, that I shall not trouble my lovely friends with any learnedly-lost investigations on the matter.

“ That large star, which, you may perceive, forms a triangle of equal sides with Sirius and Orion's Belt, is called Procyon, or the Lesser Dog. It lies to the north of Sirius, and to the east of Orion.

“ Imagine a straight line, extending towards the north, from Procyon, or the Lesser Dog; and the first bright star it meets with (which you see is  
not

not at a very great distance) is Castor, or one of the constellation called the Twins: very near which is that other bright star, called Pollux, the second of the Twins. This last lies south-east with regard to Castor.

“ Those four stars that lie in a right line, at equal distances, and about half way betwixt the east shoulder of Orion and the Twins, are the four feet of the Twins.

“ A line drawn from the bright star that forms the west foot of Orion, through the star that forms his western shoulder, carries you on to the next star, called the southern horn of the Bull. This star, and the west foot of Orion, are equally distant from his west shoulder.

“ The northern horn of the Bull is brighter than the southern: it lies on a straight line with the east shoulder  
of

#### **74 CONSTELLATION, OR,**

of Orion, and the southern horn of the Bull.

“ The Ecliptic, or the annual path which the sun seems to make in the heavens, passes betwixt the two horns of the Bull.

“ A line prolonged from the west foot of Orion, through Procyon, or the Lesser Dog, brings you to that very bright star called Regulus, or the Lion's Heart, which lies east by north-east from Procyon, and at some distance from it.

“ If you fancy a line drawn from the star in the middle of the Twins, through Regulus, it will there pass beneath a square of bright stars near Regulus, which form the constellation called the Lion. The first bright star, lying east by north-east from Regulus, and almost as large as itself, is called the Lion's Tail.

“ Extend, in imagination, a line  
9 from



from a bright star, that lies half way betwixt the feet of the Twins and their heads, towards a bright star that lies east, and it will pass through the Crab (which lies exactly half way betwixt the Twins and the Lion) remarkable by one bright star, and a cloudy clump of small stars adjoining to it. This constellation, you may observe, is hard to be remarked.

“ If you suppose a line drawn through the Twins, north-west by north, it will touch a bright star in the helmet of the constellation called Auriga, which is at a considerable distance.

“ A very conspicuous star lies south-west by south from this one. This beautiful star is called the Goat, and, due east, opposite to it, lies another, which, with three or four more near them, situate to the south, form the whole constellation of Auriga.

A line

" A line drawn from Procyon, by Aldebaran, westward, leads you to the constellation called the Ram. This is reckoned the first constellation in the heavenly order, since the mass of stars that form its head, lie nearest that point where the sun equally divides the year, making the nights equal to the days. The first star in the Ram's Horn, which is the star Astronomers reckon from, lies six-and-thirty degrees more to the west than Aldebaran.

" Draw a line, in fancy, from the Seven Stars, or the Pleiads, north-north-west, and the first very bright star it meets is the first star in, or the Breast of Perseus: the star to the north-west of this is his right shoulder: the star to the west is the left: and the very brilliant star, south by south-west of the Breast of Perseus, is the first star in the constellation called Medusa's Head;

next

next to which, there are three others, very near, that form the whole head, something in the form of a square.

“ The very bright and beautiful star, lying east by north-east from the Lion’s Tail, is Arcturus, the largest in the constellation called Boötes, situate between his legs.

“ The mass of stars west by north-west of Arcturus, between it and the Lion’s Tail, is called Berenice’s Lock.

“ A line drawn from Arcturus, north by north-west, falls in with the last star of the tail of the capital constellation called the Great Bear. This last is formed by seven stars, in the form of a plough : it is the most conspicuous constellation in the heavens, and therefore may serve to point out others. Of this constellation, the four stars that lie towards the north form an irregular square : of which  
4 the

the two stars, that are the most northern, point northwards, to a bright star, not very distant, which is called the polar star, as it lies only two degrees, or thereabouts, from the pole of the world.

“ The Swan is a very remarkable constellation, in the form of a great cross. A line drawn from the Twins, through the Polar Star, meets the Swan on the other side, at much about the same distance.

“ A line drawn from the northern side of the square of the Great Bear, through the pole, passes through the middle of the constellation of Pegasus. This too is a square, formed by four bright stars, the most northern of which forms the head of Andromeda. A line carried, in fancy, from the Pleiads to the Ram, falls upon Algenib, the beautiful star in the wing  
of



of Pegasus. The most northern of the southern stars of Pegasus, are called Scheat, and Markab: Scheat lies to the north, and Markab to the south.

" Cassiopeia is a constellation directly opposite to the Great Bear, through the Polar Star, in such a manner, that the line that passes through the middle of the Great Bear, by the polar star, passes also through Cassiopeia on the other side of the pole. This constellation is formed of six or seven stars, in the shape of a chair turned upside down.

" Cepheus is that constellation you see contained betwixt the polar star, Cassiopeia, and the Swan. A line drawn from the polar star to the Swan's Tail, passes through the two first great stars in the constellation of Cepheus.

" The

80 COMETELLA, OR,

"The Lesser Bear has almost the same shape as the Greater, and is parallel to it, but the situation is inverted. The polar star is the last in its tail. The two largest stars in this constellation are on a line drawn through the center of the square of the Great Bear, perpendicular to both its greater sides.

"The Dragon's Tail lies betwixt the polar star and the square of the Great Bear. The four stars in its head lie south by south-east with regard to the Lesser Bear, and almost form an exact square.

"Such, my amiable friends, are the constellations that most conspicuously adorn the face of heaven, in a winter night. Those which shew themselves during the nights of summer, are not so easily noted; but by the help of what I have pointed out  
to

VIEWS OF NATURE. 81

to you, I think I shall be able to render them distinguishable.

"When the star in the middle of the tail of the Great Bear, is in the meridian above the Polar Star, and in the highest point of heaven, which happens about nine o'clock of one of the last evenings in May, you will then observe, towards the south, in the meridian, that very beautiful star called the Virgin's Spike. You see this star forms a triangle, of equal sides, with Arcturus and the Lion's Tail.

"A little more to the right, but lower than the Virgin's Spike, you may remark a kind of square, formed by four principal stars: this constellation is called the Crow.

"A line drawn from the two most eastern stars of the square of the Great Bear, through the Lion's Heart,

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Regulus,

82 COMETILLA, OR,

Regulus, meets, towards the south, the Heart of Hydra. Its head is to the south of the Crab, betwixt Procyon and Regulus. This constellation of Hydra, extends from the Lesser Dog to the lower part of the Virgin's Spike.

“ Betwixt Hydra and the Crow, but to the west of this last, is situated the Crater, or the Cup. The kind of small square formed by it is remarkable enough, so that you will not be at a loss to fix upon it.

“ A line drawn east-north-east from the brightest star in the Swan, reaches the bright star in the Lyre, which is one of the most splendid in the heavens. It almost makes a right-angled triangle with Arcturus and the Polar Star, the right angle (which you now know, Cometilla, is ninety degrees) falling in the Lyre.

“ The



“ The Crown is that small constellation, situate betwixt Arcturus and the Lyre : it sometimes shews itself in the form of an oval, with eight pretty visible stars : sometimes only as three bright stars lying very close to each other, bearing west by south-west from the Lyre. A line carried from the two first stars in the tail of the Great Bear, points out the Crown, generally called Corona Borealis, or the Northern Crown.

“ That very resplendent star, which you see to the south of the Lyre and the Swan, is called the Eagle. It is very perceivable, by being placed in a straight line betwixt two other bright stars that lie very near it.

“ The clump of stars that lie to the south of, and next to the Eagle, is called Antinous.

“ The line, or the arch of a great  
G 2
circle,

84 COMETELA, OR,

circle, which passes through Regulus and the Virgin's Spike, leads you on, east-south-east, to a very bright star, called Antares, or the first of the Scorpion. This constellation is very remarkable, for to the south of this very bright star there is an arch of stars, with the concave towards the north, and the convex to the south, which forms the tail or sting of the Scorpion. Antares seems likewise to be a center to a circle of bright stars round it.

" That bright star that lies half way betwixt the Virgin's Spike and Antares, is the southern scale of the constellation called the Balance. The next bright star to this, north-east by north, is the northern scale of the same constellation.

" That other constellation which follows the Scorpion, that is, somewhat

what more to the east, is called Sagittarius. The Virgin's Spike and Antarés point to it, east-south-east. It lies upon a line drawn from the middle of the Swan through the middle of the Eagle.

" An arch drawn from Antarés to the Polar Star, first passes through the constellation called Ophiucus, or Serpentarius, and a little higher meets the constellation Hercules. A line from Antarés to the Lyre, passes betwixt the heads of Hercules and Ophiucus, which lie very near to one another. The most eastern and southern of the two is the head of Ophiucus. The stars that lie immediately to the north of the head of Hercules form the constellation of Hercules; and those that you see to the south of the head of Ophiucus, constitute the constellation of that

86 COMETILLA, OR,

name, together with a part of the Serpent, which lies east and west of Ophiucus.

“ A line drawn through the Lyre and the Eagle, towards the south-east, leads you to those two stars, near each other, which form the head of the constellation called Capricorn. Those two other stars, much about the same distance, lying beneath the Water-bearer towards the south, form the tail of Capricorn.

“ A line extended from the Eagle through Capricorn's tail, almost south-east, leads you to that effulgent star called Pham-al-Hut, or the Southern Fish.

“ The small group of stars in the form of a bright cross, you see next to the Eagle, lying north-east by east, is called the Dolphin.

“ Draw



“ Draw a line from the Lyre upon the Dolphin, prolong it to the south, at the same distance from the Dolphin as the Dolphin is from the Eagle, and the constellation called Aquarius, or Water-bearer, will be situated a little to the east of that line. In descending from the Dolphin to Pham-al-Hut, you pass through the whole length of Aquarius, beginning by the two bright stars that form his shoulders.

“ Protract a line from the Goat through the Pleiads, and it will lead you to a bright star that is the first in the head of the constellation called the Whale. A line drawn from Aldebaran through this last, carries you through the body of the Whale down to the bright star that forms its tail, after passing near those three remarkable ones that form its back.

38 COMETILLA; OR,

" Those two groups of stars that lie immediately south-east and north-east of the great star in the wing of Pegasus, are called the Fishes. The first bright star that lies south-east of these is termed the Fishes Knot, supposed to join them together. This last is the largest of this constellation, and is the first bright star situate to the south of the Ram's head.

" I was desirous of giving our Cometilla this general outline of the places of the constellations, as it may begin an habitude of referring to any particular spot of the heavens we may in future be under the necessity of doing. But the space is too wide for one grasp. I have only shewn you the expansive field we have to work in : in a great mind it rouses a great ambition ; and my sweet visitor will soon find herself upon a footing  
of

of intimacy with these heavenly bodies, by parcelling them out, in order to proceed with a regular gradation.

"This, however, I shall endeavour to make a less arduous task, by a method which I myself followed to become acquainted with the disposition of these myriads of worlds."

Saying this, and expressing a fear that he had fatigued their attention, he again touched the spring, the settee descended to the bottom of the concave, he handed them from it, and they all three betook themselves, content at their heart, and serenity on their countenance, to their peaceful cottage.

## VIEW SEVENTH.

**BY** the eager attempts and pleasing experience of several successive nights, Cometilla had now familiarized her ideas with regard to the grouping and names of the constellations. Phœbe was ever present on these occasions, and their heavenly survey generally ended in sentimental reciprocity, and confidential warmth.

One evening, while they were waiting until the parting sun had yielded up the empire of night to the stars, they had imperceptibly wandered on as far as the sea-shore; and the rolling wave was the first thing that roused them from the dark train of melancholy effusions which the hour of the evening had inspired. 'Twas from

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an eminence that the wide view burst upon their sight. For a while it made them forget the danger of their distance from home. The sun was, at that moment, dropping from the remote sky; the joyous deep raised its effulgent bosom to receive the parent of light; the horizon was cloathed in clouded drapery of awful blaze; the face of ocean seemed a lake of living fire; the flames of intermingled hues died gradually away into an unclouded, but almost sable sky. Nature was still, all but the billow that beat the shore with hoarser grandeur. The source of light, at last, went down; the blaze deadened; the flood of fire wore away into long streams of pale radiance; the moon brightened; the stars re-blossomed; the ocean darkened; and the day expired.

The fair wanderers awoke from the

extatic

extatic view with terror on their countenance: through fear, the scene had become horribly great. They clung close each to the other's arm, and, without adverting to their imprudence, took the first path that tended homewards.

They had now, in silent haste, precipitated their steps for some time; when Cometilla, starting closer to the side of Phoebe, alarmedly whispered to her, "Did you not hear that plaintive moan?" "My Cometilla," replied Phoebe, "let us not allow fancy to get the better of resolution; let us not add to the dreariness of the prospect by frightening each other. Reflect," added she, in a less serious tone, "that there is not a guardian of these bright bodies above us, that is not interested and concerned in our safety." While she was speaking, a  
found,

sound, more like the yell of despair than the accent of common grief, confirmed Cometilla's former dread. They stopped. A sudden panic benumbed every member. They looked towards the side of an opposite hill: they saw a faint light, by turns, dying and re-kindling. 'Twas nearly from that quarter that they heard the voice of continued dismay. On listening some time longer, during which interval judgment had had the opportunity of getting the better of imagination, they had reason to believe that it was the eager complaint of female misery.

For their own security, as well as for information, they crossed the valley, and made towards the light they had observed.

It was a wretched hovel; near which stood, but separated from it by a garden,

a garden, a small neat-built cottage, which, as well as they could then see, was not the residence of a common husbandman.

They ventured to approach the hole of the hut, through which the light had reached them. Cometilla stole a timid look in, and saw a tall, cleanly-looking female, with five or six children about her, all busy in preparing for their future meal. Their earnestness seemed to signify that the occasion was an extraordinary one. She perceived no male, and intimating this to Phoebe, they took courage to pull the latch.

On seeing two beautiful strangers entering at that hour, the children all ran round the mother in a close circle, their little faces marked with the varied expressions of fear, inquisitiveness, alarm, and rustic bashfulness.

The



The parent was perfectly collected, a slight emotion of surprise only, mingled with her first proffer of obsequious civility. She saw evident marks of terror and uneasiness on the countenance of Cometilla and Phœbe. She besought them, with amiable lowliness, to do honour to her rush-stools; adding, that fatigue might, perhaps, make them feel as pleasing as those that were more costly.

They were seated: and it was not till after some minutes were elapsed, that they had the power of entering into conversation with her. When she heard they were benighted, and how far they had to go, she seemed alarmed, and gave them to understand that she had no bed to offer them; but that, if they permitted her and her children, they would sit up  
with

with them; and that there was danger in going one step further that night. She spoke this in a tone that confirmed the suspicions fear had already suggested. On occasions like this, a female is easily persuaded. They gratefully thanked her for her humanity, and accepted her offer; but signified a wish to know, whether or not it was from her hovel that they had heard a complaint the most piteous they had ever listened to.

The woman looked frightened; and, without taking time to give an answer, she rushed to the door, desiring, as she went out, her eldest daughter to take care of the children.

Curiosity prompted Cometilla to ask this girl, if she knew the cause of her mother's sudden departure and apparent terror.

"Ah, madam," said the child, "I know

" know more than my father will let  
 " me tell. I am often ready to cry  
 " both my eyes out, to see my poor  
 " father obliged to do the things  
 " he does, for truly he could not be  
 " so hard-hearted himself. Ah, ladies,  
 " if you did but see what a terrible  
 " man, the gentleman, who lives in  
 " the white house in the garden, is!  
 " I shudder whenever he comes from  
 " town; for he always brings along  
 " with him some pretty lovely young  
 " lady; and then there is such busi-  
 " ness goes on as would make your  
 " hearts bleed: for the ladies scream,  
 " and he swears so loud; and then my  
 " poor father is sent for, and then they  
 " shut her up, and then the gentle-  
 " man leaves her, and then my mother  
 " is forced only to let her have the  
 " least to eat in the world; and then  
 " the poor dear ladies grow very ill,

H

" and

“and then there is no more noise, and  
 “then, after a few weeks, they come to  
 “thank my mother, and return some-  
 “where to the place he took them  
 “from : but I cannot help crying, and  
 “so does my poor mother, and my  
 “brothers and sisters, to see what poor,  
 “thin, white, sick, weak ladies they  
 “are when he turns them away, and  
 “they are so broken-hearted.”—

The child had gone on thus far in  
 her artless narration, when she was  
 interrupted by the abrupt entrance  
 of her mother. The poor woman had  
 both her hands clasped, and fixed  
 on her forehead, her cheeks were  
 washed with gushing tears, and with  
 much difficulty, and after many efforts  
 through her frequent sobbing, made  
 these few words be heard.

O God—that such a monster—  
 should live! — Ladies — ladies — the  
 loveliest



loveliest—softest—youngest—O she is dead—if you fly not—to assist.—

After these few broken words, she snatched up a rush-light, and, desiring her eldest daughter to shew the ladies after her, she flew out. They followed, in the most dreadful suspense; till the poor woman, turning suddenly round to them, said, Dearest ladies, support the sight as well as you can, for if you too should fall in the hands of the savage, you will stand in need of all your firmness for yourselves. While she spoke, she pointed to a bush, beneath which lay a mass of living blood, for, at the first view, it seemed such, that had not a part uncovered with gore.

Nothing but humanity raised to its most exalted pitch, could have strengthened them to approach.

The cottager, placing the rush-light

200 COMETILLA; OR,

in the hand of Phœbe, and going down on both knees, put her arm gently round, and raised the head and neck of a young female, whose features, blood, dust, and tears had rendered undistinguishable.

Indeed, I will not—he shall not—were the first broken words of a faintly sweet voice that struck their ears. Cometilla looked aghast: she thought she knew the tone:—Good woman, in the name of your own dear little family, let us carry this miserable load into your hut, said she, hastily; and, without waiting for, or receiving an answer, she and the cottager lifted and carried a thin, young, genteel Form towards the hovel, following Phœbe, who gave them all the light her rush afforded.

She was now placed on a mat-bed, and the good woman had begun

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gun

gun washing the blood away. Phœbe had nothing to offer her but her salts: they seemed a little to re-animate her: Cometilla was unable to distinguish the uncommon commotions that laboured within her: she stood motionless: till, at last, staring on the stranger's face, when the cottager had wiped the blood off, she screamed, staggered, and fell on the mat beside the wretched object of their attentions.

All but the eldest of the children shrunk into corners of the cabin: the sight before them frightened their little souls. The eldest girl flew to assist Cometilla. The wounded stranger began to look round her. The little strength left after the loss of so much blood, enabled her to sit up, the good woman's arm supporting her.

Is he gone? said she, fearfully look-

ing round her: O he has been cruel! Where am I? She was about to raise her arm, but the effort brought her attention home to her wounds. —The arm was wrenched. One side of her beautiful face was torn, and bruised by a violent fall. While the poor woman was administering all the aid she could to this distressed beauty, her eldest daughter had, by sprinkling water on Cometilla's face, brought her again to her senses. She suddenly exclaimed — starting from the mat, and then throwing herself opposite the stranger, her eyes fixed on hers, and her hands strongly clasped, —It is my Fanny, it is, it is my sister! —She then eagerly took hold of the arm that was free, and pressed it to her lips, while a torrent of tears gushed down to mix with her sister's blood. Phœbe trembled; she could



not utter a word. The stranger again swooned; Cometilla still bending, in indescribable anguish, over her. The poor woman, and her eldest daughter, wept bitterly: at length, by minute care, and every little aid they had in their power, they restored the three disconsolate beauties so far as to be able to sit by each other on the mat, Fanny in the middle, Cometilla on the right, and Phoebe on the left.

There ensued a pause of fearful anxiety; Cometilla, however, was, at last, given to understand, that her inconsiderate absence, was the source of the distress she then saw her sister involved in: that WERDAN, a gentleman who had paid his addresses to Cometilla, previous to her being missing from home, had, on her loss, directed all his attentions to her

sister Fanny: that, during the confusion her removal had occasioned in the family, this Werdan had done every thing in his power to seduce Fanny's affections: that, at last, he gave her father to understand he had found out Cometilla's retreat, who, for some peculiar reasons, wished to see her sister, and would return home with none but her: that he, with the father's permission, would accompany Fanny to the spot, and reconvey them both safe home: that the vile seducer succeeded to make his stratagem wear the face of truth, and brought her to this private resort of his infamous amours: that, upon Fanny's resistance, he had given her into the hands of this poor woman's brutal husband, who had left no means untried to make her yield to his lust: that, at length, finding her

her virtuous obstinacy insurmountable, they had forced her into an apartment, where they locked her up, swearing she should there determine either to die or yield to his desires: and that, during their absence, dread and despair made her attempt an escape by leaping from the window, which was the cause of the moans they had heard, and of the horrid situation they had found her in.

Without further entering into a circumstantial account of an adventure so uncommonly shocking, they gained upon the poor woman to promise silence; and, unfit as Fanny was for ever so short a journey, Comtilla and Phœbe easily prevailed upon her to accept of their assistance, and quit the place, ere morning dawned upon the attempt.

The

The poor woman lent them her eldest daughter to go before, and point out the way through the underwood; they rewarded her humanity, and with their trembling, bleeding charge moved slowly on, as the girl directed, in all the misgivings of the heart that darkness and silence could form.



## VIEW EIGHTH.

**T**HE double satisfaction of being relieved from the most alarming anxiety, and of having had an opportunity of doing justice to the tenderest feelings of humanity, employed every faculty of Marco's soul, in a manner that would not suffer sleep to approach his eyes. He arose, and, in order to make good the promise he had given to Cometilla's unfortunate sister, he wrote to her father. He gave him to understand that his daughter Fanny had been consigned into the hands of a villain: that Werdan, whom he had intrusted her with, had proved himself to be the most barbarous and brutal of men: that she had saved her honour  
at

at the risque of her life, which she owed to the most unlooked-for providence: that her father might make himself so far easy on the event as to be assured that his luckless daughter was with the tenderest of friends, in the hands of two of her own sex, and protected by a father who too fatally knew what it was to lose a beloved child: and that, as soon as her health would permit her, his Fanny should be the harbinger of her own tidings, to which she should add the more unexpected comfort of blessing him with happy news from his eldest daughter.

A shepherd's boy, whom Marco through experience knew he might confide in, was charged with this letter:—he set off with it by the earliest dawn, with orders to leave it with one of the servants, to answer

no questions, and instantly to return.

By this time Phœbe and Cometilla had made their appearance, while the exhausted, wounded Fanny was still in the arms of a heaven-sent sleep.

The dew-drop was yet trickling from the trembling osier; the dank gale of night had not yet ceased to refreshen and invigorate the parched soil; the undecided star was yet seen, every other now and then twinkling on the brows of the horizontal cloud; and even twilight itself was still doubtful, when Marco, after having enquired into the repose of his hapless patient, and having received the most favourable account from her two fair attendants, withdrew with these last into a contiguous apartment of the cottage, in order to resume their favourite task, which had  
now

210 COMETILLA; OR,  
now been, however necessarily, too  
considerably interrupted.

The evils of this life, my lovely companions, said Marco, placing himself between Cometilla and Phœbe, upon a settee, opposite to which there hung against the wall a broad, smooth, dark-painted canvas—the evils of this life should never, by any means of ours, be productive of other evils; it is our business to bear them with fortitude, and, if possible, destroy their immediate effects. Our ill-fated Fanny (for, as I have been her physician, I will now presume to call her *our* Fanny too) has suffered much; but these sufferings might have been of a much more horrid nature; we have, therefore, on reflection, more cause to rejoice with her, than to prolong our grief for her. Her hurt is much lighter than our fears had  
at



at first represented : I have taken care to acquaint your family, charming Cometilla, in the manner that prudence told me was best ; and now nothing on our parts remains to be done, but to smile away our Fanny's despondency, and return to that pursuit which will leave no room in the mind for transient tribulation.

Returning joy beamed on the countenances of the two fair friends, while Marco thus continued :—The observation has already occurred to us, that it is infinitely more natural to believe that the earth turns round its own axis, than that the immense body of the sun, and all the stars, should turn round the earth, for the purpose of giving light and heat to so small a body. But future experience threw an almost insurmountable difficulty in my way.

I had

I had for many successive mornings most accurately observed what object in the horizon corresponded to the spot where the sun rose, and I found that, during six months of the year, his rising was always marked by a different object in the horizon, and that, during the six succeeding months, he returned the way he came. I observed that his setting was as variable as his rising, and began to suspect that the sun had a motion of his own, which I was not yet aware of. As one of the best ways of coming at truth is by comparison, I remarked the rising of one of the most lucid stars I could pitch upon. A distant tower in the horizon pointed out the spot of its first appearance. During several succeeding nights, this star (as well as the rest) never once varied the place of its

its rising or setting, but constantly made its appearance behind the very same tower. I now began to be confident, that the sun in particular must either have a motion of his own or at least appear to have one.

To get the better of this difficulty all the powers of my mind were awakened. Since the stars seemed, by experience, to have no motion of their own, and since the sun, by the same experience, most undoubtedly had either a real or an apparent motion, I thought I might consistently enough make use of the stars as fixed stations, by the help of which I might perhaps discover the motion of the sun.

With this intention, I placed myself one night in the umbone of my observatory, when the sun was set-

I                      ting.

ting. My eyes were fixed to the west, and eagerly prepared to catch the first star that should make its appearance after the sun's orb had disappeared. Within the space of twenty minutes a bright star shone to the east of the sun, which, by the help of Phoebe's invention, I found to be about thirty degrees distant from him. On the next night, I took the distance of the same star from the setting sun, at the very same minute of time I had done the preceding evening, and I found, to my astonishment, that it was nearer the sun by one whole degree. I continued my observations, at the very same hour, during several successive nights, and found that not only it gradually approached the sun, but that, at last, at the self-same point  
of



of time that I had made my first observation, it was wholly swallowed up in the rays of the sun and disappeared.

This course of observations I pursued with many other stars, and always found that the sun gained upon every one of them. I was therefore now satisfied that I had discovered some new real or apparent motion of the sun; for I was sure this motion did not exist in the stars I had fixed on, since they all preserved the same distances with regard to each other, and rose and set in the same points, whereas the sun varied every day his rising, setting, and position with respect to the stars.

But the knot of the difficulty still remained. To undo which, I again had recourse to my observations of the sun in the horizon.

After having traced him in his various risings to the twenty-first day of June, I remarked that, for two or three days, he appeared not to change the spot of his rising: I then with the help of my quadrant observed how high he was above the horizon at the hour of twelve on one of those days, and found the height to be sixty-two of the three hundred and sixty parts into which I had divided every circle, that is, sixty-two degrees; after this his rising point returned from the north to the east, and his height in the heavens at noon grew gradually less, until he at last rose exactly in the eastern point of the horizon. The morning he rose in this point, was on the twenty-third of September, and I could not but notice that at that  
time

time the day was equal to the night, and that the mid-day height of the sun was only thirty-eight degrees and a half. During three months more I observed, that he continually rose more and more to the south; and on the twenty-second of December his mid-day height was only fifteen degrees above the horizon: he descended no lower, but then retraversed the path he had taken, and on the twentieth of March returned to the very same point where he had already risen on the twenty-third of September, and now again the day was equal to the night, and his height at noon was again thirty-eight degrees and a half. He then passed on to the very spot where he had risen on the twenty-first of June, and his mid-day height was

118 COMETILLA; OR,  
again the same, that is sixty-two degrees.

I now entertained no doubt but that (as he rose twice during one year in the very same spot of the horizon, and as at that period the days were equal to the nights, and his mid-day height was the same) the sun was then above the equator of the earth, and that if he always rose in the same spot, we should always have equal days and nights: but I observed that in winter he went from the equator twenty-three degrees and a half southwards, which I reckoned on the ring of the horizon, and in summer he also rose twenty-three degrees and a half from the equator to the north; or, in other words, that, in the depth of winter, his mid-day height



height was fifteen degrees above the horizon; that in spring and autumn his mid-day height was thirty-eight degrees and a half, and that in the height of summer his elevation at noon was sixty-two degrees; the difference of which, on both sides, was twenty-three degrees and a half, as I had already remarked on the horizon. The last observation I made on this subject was, that the very same star which I had seen thirty degrees to the east of the sun, came round to the same situation in the course of one complete year.

I concluded from all this, that the sun made, or appeared to make, a circle in the heavens during the period of one year; that in summer and winter he never went further than twenty-three degrees and a half beyond

the center, or the equatorial division of the earth, and that, as his distance on both sides of the equator was equal, the annual circle he described must be supposed to be a great circle, as well as the equator.

This subject, however, I mean to render more clear in the next view we take of it: I am only now desirous of preparing your minds for the observations, which you yourselves may confirm by following the sun in his journey through the different stars which he overtakes, and in his various stations of rising and setting in the horizon. Our next conversation shall therefore familiarize the theory of this;—mean while, my dear Phoebe, let us put a stop to it, as I perceive your lovely friend  
is

is all concern to revisit her sweet patient. When you shall have seen her, be so far just to my feelings as to suppose that I too am not without my anxiety with regard to the welfare of our unfortunate beauty.

VIEW

## VIEW NINTH.

**H**OW sweet a sensation it is, to minds glowing with friendship, to see their cares rewarded in the returning health and spirits of the object of their attachment! Fanny had experienced all the healing virtues of the balsamic simples which Marco had applied to her bruises: she was now awake, and tears and thanks, mixed with the big sob, bursting from her grateful heart. Marco, however, rather insisted on her being left as much alone and as quiet as possible; the motive he urged, as an excuse for drawing Cometilla and Phoebe from her, was a powerful one with them, as it brought them back to the pursuit they so emulously cherished.

Until



Until our sweet Fanny, said Marco, leading Cometilla and Phoebe into his study, shall so far recover her lost strength as to be suffered to be left by herself, let us endeavour to be as little distant from her as possible, while we proceed with our observations on nature. They were seated, and Marco thus resumed the explanation of the foregoing view:—

The investigation into this motion of the sun, I found attended with much difficulty, and therefore began to think I was in a wrong path. I recollected that I had already discovered, with perfect ease, that the apparent motion of the sun round the earth in twenty-four hours, was owing to the motion of the earth round her own axis: I saw that this simple daily movement of the earth round herself, evidently accounted

for all the diurnal apparent motions of the heavens. Since then the earth, by wheeling round herself, occasioned night and day, might not the same earth, by wheeling round the sun, occasion the vicissitude of seasons? This inference pleased me, because it was simple; I therefore immediately resolved to make all the use I could of the observations I had already made concerning this apparent annual motion in the sun. I summed them up in this manner:

During one year the sun rises and sets in different points of the horizon.

When he rises and sets due east and west, the days are equal to the nights.

In the month of December he rises and sets twenty-three degrees and a half from the east and west points.

In

In the month of June he rises and sets twenty-three degrees and a half from the east and west points, but on the opposite side.

The sun's height at noon in December is fifteen degrees only.

The sun's height at noon in the month of June is sixty-two degrees.

The sun's height at noon is twice a year the same, that is, his height in the east and west points is, twice a year, thirty-eight degrees and a half.

The sun therefore has a certain space, both in the heavens and in the horizon, beyond which he can rise no higher nor sink lower.

With these observations in my head, I argued thus : If it be the earth, as I suspect it to be, and not the sun, that makes this circle, these appearances will hold good if I suppose the sun in or near the center of a circle  
or

or some such figure, while the earth travels round it. To try the strength of this argument, I betook me, with two or three shepherd boys to assist me on the occasion, to the only real level piece of ground I could find near my cottage. This happened to be the declivity of the hill on which I built my observatory: the form of this slope, you must have observed, Cometilla, is almost a perfect oval, and rather steep: I made the boys gather together in one large heap a vast quantity of dry wood, which they piled up in a round compact body. I then divided, as nearly as I could, the declivity into two parts, and drove two high stakes in the east and west points of this division. These I meant should point out the rising and setting points of the sun. I then placed another large stake at the very summit of  
the



the declivity, and one more at the bottom, north and south; by which I understood the highest and lowest points of the horizon, beyond which the sun never passed, as well as the highest and lowest points of the sun's ascent or descent in the meridian. Betwixt these stakes I placed as many others as formed twenty-three divisions and a half on either side of the east and west points, until, with the north and south stakes, I had at last formed a kind of divided oval. This done, I waited till darkness should prove further favourable to the experiment.

It turned out to be one of those dead calm nights, when every cloud is deepest sable and every wind hushed. Not a leaf was heard to tremble on its fellow leaf: not a glimpse of æther was seen through  
the

the embodied night. All the animal creation was sunk in silence and in gloom. I seized on this opportunity, and, loading my little rustic companions with a considerable quantity of small lanterns, we repaired to the hill.

On each of the four highest stakes, that is, on the east, the west, the north, and the southern stake, I fixed a larger lantern; and on the other intermediate staves I placed smaller ones. I then gave orders that the pile of wood in the middle of the declivity should be set fire to. As the wood was dry, it soon burned down into clear and bright charcoal.

I now stood at the summit of the slope, by the northern stake, and supposed myself to be in the place of the globe of the earth: I will therefore from this point proceed to give you,

you, my lovely friends, an idea of this nocturnal scene.

The fire was so prodigiously large in the middle of the declivity, that it was very sensibly felt where I then stood ; but I took notice that it principally affected my legs ; and that my face felt little or nothing of the heat : at the same time the deception of the distance and the darkness of the night was such, that I imagined the fire in the middle of the oval was absolutely at the bottom of the declivity, and burning in the very place where the southern lantern was fixed. I now began to descend westward round the stakes, and I observed, with a degree of rapture natural to every mind that begins to see truth dawn upon it, that the pile of fire appeared to leave the stake at the bottom of the hill, and move or

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mount

mount in a direct road to the eastern stake, as I approached the western: the fire too began to rise above my legs, and spread its heat on a part of my body. When I arrived at the west stake, the pile of fire seemed to have ascended or travelled exactly to the east stake, and there it mixed with the light of the east lantern: I now had one side of my body completely illuminated, and agreeably warmed by the fire. Methought I was now in the equator of my course, and that my sun or my fire had risen through his three-and-twenty stakes and a half, or degrees and a half, to his eastern point. I continued my journey, and observed the pile gradually mounting to its highest pitch, and by the time I was at the bottom of the declivity, or at the south stake, the fire seemed to me to be



be burning on the very summit of the hill, where the north stake was placed. I could not help, at the same time, taking notice that the full force of the fire now fell upon my breast and face, and that my legs were almost wholly secured from it. While I turned round this stake, the fire seemed not to move from the summit stake or lantern, and it was not till after I had taken three or four steps that it again began to move. As I mounted to the east lantern, it descended to the west stake; and as soon as I had arrived it appeared to me to burn exactly where the west lantern stood, and again one whole side of my body, from my feet to my head, was illuminated and gently heated: this was the second time I felt myself in the equator of my journey, though I had not yet finished

one round. I proceeded up the declivity, and the fire proportionally descended the slope, until at last I returned to the spot whence I had set off: I there had the pleasure of seeing every observation I had made on the apparent motion of the sun in the horizon, and in the heavens, explained by the simplest of experiments: for,

When I stood on the top of the hill, it was winter to me, for my fire or my sun was then lowest, and nothing but the lower part of me felt any kind of heat.

When I stood on the west side of the declivity, it was spring to me, for my fire or my sun gently warmed and enlightened one whole side of my body, and my fire then appeared in the east.

When I stood at the bottom of  
the

the hill, it was my summer, for I then felt all the heat pour down upon my face and shoulders.

And when I stood on the east side of the hill, it was my autumn, for I there saw my fire again in the middle of the declivity, and one half of my body was again illuminated.

Thus, during one whole round, I observed that my fire rose from a bottom point, went through a middle point, stopped at an uppermost point, then returned to a middle point again, and finally stopped at the same bottom point whence it had ascended, directly and accurately in the same manner as I had observed the sun to do in the horizon during the course of one year. Add to this, that the lowness of the fire, which seemed at the bottom when I stood

134 COMETILLA; OR,

at the top of the hill, plainly indicated the lowness of the sun in the meridian during the winter; the middle station of the fire, when I stood on either the east or west sides of the declivity, pointed out his middle height in the equator when the days and nights are equal; and the great height of the fire when I stood at the bottom of the hill and felt the most heat, evidently shewed the sun's greatest height in the meridian during the summer months.

One last observation confirmed me in the idea that I had found out the real motion, the effects of which I had observed in the sun: this was, that when I saw the fire in its greatest and least height, it seemed to remain in the same spot while I turned round the opposite stake, exactly in the same manner as the sun had appeared



peared to me to remain for two or three days in the highest and lowest points of heaven on the twenty-second of December, and the twenty-first of June.

If I mistake not, said Cometilla, timidly interrupting Marco, I have for these two or three last minutes heard my sister's voice; I hope nothing is the matter.—Fly, my Phœbe, said Marco, hastily; satisfy the feelings of the tenderest of sisters. They rose, and, as the still hour of noon was now approaching, Marco retired to a contemplative haunt in the grove, that formed a sylvan screen behind his solitary cottage.

## VIEW TENTH.

**T**HERE stood in a remote glade of this grove an aged elm, of which the wide-spreading branches, which almost reached the ground, formed a retreat that Marco loved to resort to, as often as his paternal heart felt the first attacks of desponding anguish. This recess had only one small outlet. It was a vista that led down into an abrupt valley: the opposite side of which was beset with intermingled rocks, and a wild variety of underwood, shrubs, and trees. From both sides of the valley a thousand streamlets, gurgling from beneath so many rocks, joined in the pebbly bottom, and threw up a thin vapour which fixed the eye of musing melancholy,

lancholy, while the ear was led on to inspiration through the uniform murmur of the straggling eddies.

After a long pause of oppressive reminiscence, Oh my son! my son! my Curio! said Marco, with a sigh that burst from the bottom of his soul—on what distant sea, in what distant region dost thou now wander? Thy too sensible heart, my Curio, has made wretches of us both. Hadst thou but delayed thy departure some time longer, my poor Isabella would have still been a blessing to her Marco, and thy Cometilla might perhaps have at last known thy worth and thy generous passion—Why has her sister been thus thrown into our hands? I fondly hoped that I might have attached the adorable Cometilla to the dear the ill-fated Phœbe. Fanny, I fear, must soon return,

138 COMETILLA; OR,  
turn, and then I shall lose her sister :  
but if the path of misery has been  
thus chalked out to me by the hand  
of Heaven, it is my duty to pursue it  
with the firmness of a man who feels  
he was not born to be uniformly  
happy.

As Marco was thus musing, he  
found he had imperceptibly left his  
elm, and he was wakened from his  
sad reverie by the boughs of hazel  
which intercepted his way as he was  
now tending back to his cottage. On  
his coming out from the grove, the  
first thing that struck his sight was a  
flower-bank in his garden, where  
Phoebe and Cometilla had placed be-  
twixt them their dear their interesting  
charge, their much-recovered Fanny.  
They rose to meet him. Give us joy,  
said Phoebe, with cheerfulness : our  
attentions have been as successful,



as our wishes were hearty. While Phœbe spoke, the elegant creature beside her approached Marco in an attitude that witnessed feebleness and bespoke gratitude. Nothing, said Fanny, with a trembling but with the sweetest tone of voice imaginable, nothing but my own sad experience could thus convince me that my sister Cometilla was committed to the care of angels when she fell into your hands. To a heart that feels, no weakness gives so much pain as that of expression—Dearest of women, added she, turning to Phœbe, you have promised me a place in your friendship with my sister Cometilla; complete this obligation by informing me how I may be able to repay the humanity of the most god-like of his sex.

Marco, perceiving her to be too  
strongly

strongly affected, gave an instant and delicate turn to the solemnity of the address, by offering her his arm, and saying to Cometilla, Let us all four go to the mount, and try whether or not this too grateful girl can run away from us yet or not.

As they proceeded onwards, Cometilla said to Marco, It is impossible to conceive how much I long to examine your wonderful declivity. We have been entertaining our Fanny with the ingenious experiment, and we were not a little astonished to find, that, during our absence, she has amused herself with nothing but the representations of the courses of the heavenly bodies, which had been hung up in her apartment.

I have little merit, rejoined Fanny, in whatever knowledge I may have acquired of nature. I might have been

been acquainted with it, had more carefully treasured up what I was once taught with much pain and long assiduity. Believe me, my dear protector, added Phœbe, you will find, that our amiable patient is a gréat adept in this sweetest of sciences. She looks it, resumed Marco, and surely science from such lips cannot but be sweet. The uniformity of our scene called for such variety, and nature will prove less coy when invoked by one of her own sex. They were now on the mount. The stakes had never been pulled up, and consequently formed a rural inclosure lined with moss, and adorned with ivy. The central spot, where the fire had been, formed a kind of brown circle, which was still very visible.

Can you, said Marco to Cometilla, from this bare view of the declivity, form

form to yourself any idea of the motion of the earth round the sun? or shall we wait till night shall make it as clear to you as it first did to myself? Now we are here, rejoined Cometilla, I think I could almost repeat to you what you so easily and perspicuously explained to us. I should be delighted to listen to you, said Fanny, who seemed to brighten up as she surveyed the charming prospect around her. Then if my dear Phœbe will condescend to stand in the middle, and be the sun for a while, and if you, Sir, will take the place of the earth, and roll round the stakes, I will endeavour to do what justice I can to your instructions. Meanwhile my sister will accompany me, and perhaps be of no small assistance to me when I am wrong.

Phœbe took her place in the cen-



ter, smiling; Marco stationed himself at the west stake, on the side of the declivity directly opposite to Phœbe; and Cometilla, who held Fanny by the hand, thus began:—

As you now stand in the middle of the declivity, and directly opposite Phœbe, you represent the earth when it moves in the middle of its course round the sun: and as Phœbe hides the east stake at this moment from your sight, so, when the earth is in a similar position, the sun will appear to rise directly in the east point of the horizon. Besides, you are now exactly on a level with Phœbe, if the top of the hill were cut off; and so is the earth with the sun in this part of her circuit; a proof of which is, that thus one exact half of her globe is illuminated, and the other half in darkness; that is, that the  
days

days are then equal to the nights, or, in other words, that the earth is then in her equator.

Here Marco interrupted Cometilla: You recollect, fair Cometilla, that in our observatory this equator was represented as a circle, cutting the heavens into two equal parts from east to west. Now, as Phœbe, the east stake, and myself are in the equator, tell me whereabouts would you draw this large circle? Cometilla smiled, and was silent. Marco looked at Fanny, who, with a becoming blush, answered; Perhaps the plane of this circle might shoot out horizontally from the east stake, from beneath Phœbe's feet, and from ours where we now stand in the west: so that if the upper part of the hill were sliced off horizontally from Phœbe's feet, the smooth surface would then

6 represent

represent the plane of the equator.—  
 And I think I can now prove it is  
 so, rejoined Cometilla eagerly, for  
 you said, Marco, that the bottom of  
 the declivity marked out the lowest  
 point the sun descended to from the  
 equator; you added, that you mea-  
 sured that distance, and that it was  
 twenty-three degrees and a half; now,  
 if my eye does not deceive me, a circle  
 shooting out from beneath Phœbe's  
 feet horizontally, and carried on till  
 it overhung the bottom of the de-  
 clivity, would come pretty near the  
 measure of twenty-three degrees and  
 a half.

Your ingenuity, fair creatures, stands  
 in little need of an instructor. You  
 are perfectly right; we shall therefore,  
 for the future, suppose the equator to  
 shoot out from beneath Phœbe's feet  
 horizontally, and form a wide plane

L                      hanging

hanging over all the nethermost part of the declivity, much in the same manner as the round plane of your hats shoots over your faces.—But a whimsical thought has occurred to me; indulge me in this opportunity to mention it.

Travellers have taken it into their heads to divide the surface of our earth into so many portions, which they call zones or belts. This division was undoubtedly occasioned by the varied influence of the sun on the globe of the earth, while she held her course round his body. The central part of the globe they termed the torrid zone, because the power of the sun is there the greatest. On each side of this, to the north and to the south, they placed temperate zones, because his influence is there more benign; and from thence to the north and south poles



poles they placed frigid zones, they being the farthest from the heat of the sun. Now, as I hold the place of the earth at this moment, I will endeavour to account for, or explain the manner in which the heat of the sun discriminates the zones. However trifling, I know, ladies, you will pardon the whimsey for the sake of the motive.

It has been said that the human body is the measure of all things, Why not in the instance of the globe of the earth? particularly as it has been very devoutly believed, by some holy and learned men, that our proto-parent was little less than the globe in size, since they aver, that when he extended his mighty arms, he could touch the utmost limits of his domain, or, as an astronomical poet would have said it, he could reach from pole to pole. On

this ground I will therefore venture to call the crown of my head the north, and my feet the south pole; from the crown of my head to my temples shall be the frigid zone; from my temples to the lower part of my shoulders the temperate zone; from thence to the upper part of my thigh will be the torrid zone, through the middle of which, or through the midst of my body, will pass the equator: from the upper part of my thigh down to the lower part of my knee I find another temperate zone; and from thence to my feet another frigid zone. Since I have hazarded so much, I will beg you to carry imagination a little further. What I am going to add may not, perhaps, prove wholly useless.

Conceive me, if you possibly can, as I stand here, surrounded with so many  
many

many hoops. In the first place, suppose one large hoop running round the center or middle of my body, or, if you please, of my torrid zone; that large hoop will be my equator: imagine two other less hoops, one running round the lower part of my shoulders, and the other the uppermost part of my thighs; these two lesser hoops will inclose the whole of my torrid zone; and, that we may remember these two lesser hoops, we must give them some name, for instance, let us call them the two Tropics: and then, proceeding up to the temples, and down to the lowermost part of the knees, suppose two other still less hoops, these two will inclose the two temperate zones, and, as they will thus divide the temperate zones from the frigid zones, and from the poles, we may call them the polar

L 3           hoops,

150 COMETILLA; OR,

hoops, or, if you please, the polar circles. Thus, you see, I shall be inclosed in five horizontal circles or hoops; but, in order to keep those fast about me, I entreat you to apply to fancy once more, and suppose another large circle, as large as the equator, rising from the crown of my head, or, if you please, from my pole, passing perpendicularly over my face, and fastening all the five circles down to my feet. As this circle divides my right hand from my left, and consequently my whole body lengthways into two equal parts, we shall call it the *meridian*; and I do not think it will be amiss, in order to make a complete sphere of me, to imagine still one circle or one hoop more, rising from my pole as the *meridian* did, dropping perpendicularly down over my right and left arms, and meeting  
under



under my feet. This large hoop, in the spots where it cuts the equator, shows the east and west points; and, as all the others have their names, it must have one too, we shall therefore call it the *Colure*. But what you must particularly advert to, is, that the hoops themselves represent the circles, which are only imagined to exist in the *Heavens*, while the respective shadow of each hoop upon my body may very properly be called the same circles on the *Earth*; that is, the hoops are the celestial, and their shadows the terrestrial circles.

As I therefore now am, in a tolerably exact sense of the word, the representative of the earth, with all my hoops dangling about me and dividing my zones, I here put a stop to the whimsey, and hope our Fanny

152 COMETILLA; OR,

will forgive the conceit, while Cometilla proceeds with her observations on this male earth going round that female sun.

I like your hoops prodigiously, said Cometilla, for I shall now be much more able to shew what I mean, and what I think you meant by the vicissitude of the seasons.

As you now stand, Phœbe is even with you from pole to pole, that is, from the crown of your head to the sole of your feet. There is therefore one whole half of all your hoops in her sight, and another half out of her sight: that is, she sees one half of your equator, to which she is directly correspondent; she also sees one half of your tropic hoops, and one half of your polar hoops: and tho' you turn round yourself, yet if you remain in the same spot here behind this stake, still she  
will

will see one half of your hoops. I therefore see why the day is equal to the night, when the sun rises exactly in the east: it is because the earth is then precisely in the west, and that she presents one half of all her circles to the light and heat of the sun, while the other half is turned away from him, or in darkness. All the people, therefore, who live in the different zones of the earth, when the earth is in the west point of her course, and the sun in the east, have half of their hoops or their zones turned to the sun during the day, and the other half is turned from him, which gives an equal night. And, if the earth stood always in the same point, and continued to turn round like a top, all the people on the earth would have equal days and nights.

Your idea of a top, interrupted  
Marco,

Marco, suggests a curious question.—  
 As day and night depend upon my turning round myself, and presenting one part of my hoops to the sun, and turning the opposite part off from his rays, what contrivance shall we have recourse to for the purpose of knowing what space of time we enjoy the sun's light, and how long we are deprived of it, while the earth turns once round her own axis? — This question of yours, said Fanny, gives room to another, on a subject which I could never clearly understand : you may perhaps smile at my extreme ignorance, when I assure you, I do not know what TIME is. I beg you will inform me.—The request does honour to your judgment, replied Marco, and I will joyfully endeavour to satisfy you. If we were just now standing on the shore of the wide ocean, and if

I put



I put this question to you, *What is a gallon of this water?* what answer would you make me?—A certain quantity of that water, replied Fanny, taken out of the bed of the ocean.—This reply is very vague, rejoined Marco; I desire to know what a gallon is, and you answer me what may make forty gallons.—Then, returned Fanny, I can only make you sensible what a gallon of that water is, by measuring it.—There is no other way, most undoubtedly, rejoined Marco; for there is no such thing as gallon, while the water of the sea lies indiscriminate in one universal bed; it only acquires that denomination when confined in those limits which we allot to a gallon.—Again; *What is a mile?*—I think, said Fanny, I can now make my answer less indefinite. A mile is a distance included betwixt

two

156 COMBTILLA; OR,  
two marks or stones, which society are  
agreed to admit for a measure of that  
nature.—You are perfectly right, said  
Marco; for there is no such thing as  
a mile in itself: it only receives a kind  
of modal existence by two limits,  
which form a beginning and an end  
to a space, which of itself had neither.  
Now, if I were to ask you, *What are  
five thousand seven hundred and ninety-  
two years?* how would you answer  
me?—I believe I might venture to  
say, the time included betwixt the  
first moment of the creation of the  
world and this we now enjoy.—What  
are the limits that mark those two  
moments, continued Marco?—The  
first rising of the sun, I should suppose,  
and the place he just now occupies in  
the firmament.—You approach the  
mark, my amiable friend; for the ri-  
sing of the sun depends upon the mo-  
tion

tion of the earth : and the very beginning of this motion is the first limit of the period I asked you ; the last limit is the same motion of the earth, as it is at this instant marked to us by the fixed body of the sun. If we therefore compare the continued motion of the earth to an immense and long tract of ground ; and the different situations of the fixed sun, in consequence of that motion, to the different mile stones ; we shall conceive this idea of time :—*Time is the duration of the motion of one celestial body, marked out into intervals by another immoveable celestial body.* The wide ocean is therefore what we understand by eternity, and the gallon measure is time, or *two or more celestial bodies measuring out motion by their various aspects.* — My mind is fully satisfied, said Fanny, her sweet coun-

countenance witnessing gratification, and I now think you have put me in the way of answering the question you proposed to us; that is, What method we should imagine, to know how much time the earth enjoys the light of the sun, and how long she is deprived of it? Since it is the business of the fixed sun to mark out time by the motion of the earth, let us suppose so many dots or marks on the earth as she turns round herself, and for every dot that passes from the light of the sun into darkness, let us suppose so much time past.—O, replied Phœbe, it is now time for me to put a word in: there is no necessity, Fanny, of supposing the earth marked with so many dots, for Marco has already told us that every circle is divided into three hundred and sixty parts; now I don't see why we should not mark these  
three



three hundred and sixty parts upon the broad hoop which he calls his equator; and, as that hoop is larger and more exposed to my light, (for you must not forget that I am the sun) than the other hoops, we shall more easily see how many of these parts pass from light into darkness, and measure our time accordingly. Charming! exclaimed Cometilla; for I should suppose, as that is the middle hoop, there will always be one half of it exposed to the sun, and therefore we may reckon more regularly upon it, how long the other lesser hoops or circles remain in the light.—Well, but, said Fanny, will it not sound very odd, if a person should ask us the hour of the day, to answer, for instance, It is half past two hundred and forty?—We dine at one hundred and eighty; we sup at two hundred and

and seventy!—Pooh, replied Phœbe, this is easily remedied. Since you do not choose to reckon by so many degrees, let us take the three hundred and sixty degrees, (for I am determined not to give them up, I have found them so useful); let us take them by tens; and then we shall have only six and thirty divisions of time; so that we shall rise, for instance, at nine, dine at eighteen, sup at twenty-seven, and go to bed at thirty-six.— Since you have so far succeeded, my lovely friends, I scarce improve your ideas, when I suggest to you, that, instead of reckoning the degrees on the equator by tens, you may do it by fifteens, and then you will exactly divide the three hundred and sixty degrees into twenty-four parts, which are the twenty-four hours that constitute night and day; so that when  
fifteen

fifteen degrees of the equator, or of my large central hoop, shall rise from darkness into light, there will be one hour passed in the rays of the sun; when fifteen more shall rise, there will be two hours passed in the light of the sun, and so on; and when twelve times fifteen degrees, or one hundred and eighty shall have passed, then it will be twelve o'clock, or, in other words, the meridian that cuts the equator into two equal parts, shall then be exactly opposed to the sun.

Here Cometilla's looks intimated to Phœbe, that she was afraid lest the conversation might prove too long for her Fanny: Phœbe took the hint, and, coming up to Marco, reminded him, that the hour of their noon repast was near, and that Fanny stood in need of his arm, this being the first time she had ventured out

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since

since her arrival at the cottage. Marco apologized; and the serene group, after an agreement that they should again visit the declivity, to attend to the remaining part of Cometilla's explanation, withdrew homewards.



## VIEW ELEVENTH.

**T**HREE hours were now elapsed since the sun had passed the meridian: Marco's fair friends were eager to revisit the hill. His hoops had filled up the whole of the conversation during their noon repast; and they longed to know to what purpose Marco could employ them all. Fanny intimated to the happy group, that the walk she had had in the morning, instead of being detrimental, had done her much good; Phoebe made use of the hint, and Marco rose to accompany them to the declivity.

As they were on their way, Comettilla, addressing Marco, said; I have

often heard that there are people so well acquainted with the laws of the heavenly bodies, that they can tell you, years before the time, when, where, and how such and such a body shall make its appearance. Now, I have been ruminating over this, and I cannot make out by what strange means they can point out any particular star among so vast a number like itself, and in a void, or space where there are no marks to depend on, or to conduct the eye to the intended spot.

In the first place, my fair friend, said Marco, it is not so difficult as you imagine to distinguish the heavenly bodies from one another. Because this earth of ours receives her light from the sun, and particularly because she has a motion of her own around him, she is called a planet;  
but

but besides this earth, there are six other planets, who likewise roll round the sun, of which we shall talk more fully in the proper place: suffice it to say, just now, that all these planets are very easy to be known. Mercury is not often seen by the naked eye, on account of his vicinity to the sun; but when he is seen, he is well known by being a small clear body, without any scintillation. Venus is next to him, and is extremely distinguishable. She is apparently one of the largest bodies among the stars; beautifully bright, but of an uniform splendor, without any rutilation. Mars is smaller, of a dull fiery cast: Jupiter is almost as bright as Venus, and perhaps of a more silvery hue, and never sparkles: and Saturn is of a pale, settled light, which, with the help of the commonest

glass, you will always observe surrounded by a ring. These are very obvious tokens by which we may know the planets from the other stars. With regard to these last, they are divided into so many magnitudes, or sizes; the usual number is seven; so that when they speak of any particular star of any constellation, they say, it is a star of the first, second, or third, &c. magnitude, in such and such a constellation.—But the real difficulty you seem to hint at in your question, Cometilla, is, how they can point out the very spot where a body shall appear, in a space, at once boundless and undistinguished. This comes directly home to my hoops: and it was for the very purpose of shewing the places of the heavenly bodies that I at first had recourse to them.



them. As we go along, I think I can make this matter clear to you.

It is very true, that there are no fixed marks in the vast space, to which we can refer the places of those bodies, which are perpetually moving round us. It is for this reason, that fancy must step in to supply the deficiency, and, with the help of imaginary circles and points, convert the heavens into a map, where the celestial regions may be as easily distinguished as those on earth. For this purpose, you must not forget the situation of our first four great circles, the Horizon, the Equator, the Meridian, and the circle the earth makes round the sun, which I shall henceforth call the Ecliptic. The Horizon you all easily distinguish: the Equator you may also find without much difficulty,

168 COMETILLA; OR,

by observing how high the sun is on the twenty-first of March, or the twenty-third of September; because, on those days he rises, moves on, and sets in that circle: the Meridian is seen every day at twelve o'clock, for the sun is then in it, or passes through it: and the Ecliptic is as easily discovered, by reckoning on your quadrant three and twenty degrees and a half below or above the Equator. Now I have found it possible to point out the exact situation and place of any of the celestial bodies, by referring them to one or to all of these four circles: for instance, if at this moment I were desirous of shewing the exact situation of the sun in the heavens, I might refer him either to the horizon, or to the equator, or to the meridian, or to the ecliptic, or to all four.

If

If I should wish to shew his place by referring him to the horizon, the first thing that occurs to be done, is to observe how high he is above it: I shall therefore suppose a large circle rising perpendicularly out of the horizon, passing thro' the centre of the sun, and going on to the point that is directly above my head, or to my zenith. Upon this circle I reckon, by the help of my quadrant, how many degrees he is from the horizon, and this I call his altitude or height. The circle upon which I count it, I call a vertical circle, as it stands perpendicular to the horizon, and passes exactly over my head. But this altitude does not exactly tell in what region of the heavens the sun is; I therefore proceed to refer him to some other point in the horizon, for instance, the east, or west, to which he  
is

170 COMETILLA; OR,

is now verging : for this purpose, I suppose another great circle passing directly over my head, and cutting the east and west points of the horizon : this last circle, for distinction sake, I shall call the first or prime vertical. I then observe how much of the horizon lies between the west point and the vertical circle, on which I had measured his height, and I say the sun is so many degrees to the north of the prime vertical : this portion of the horizon betwixt the prime vertical and the vertical of altitude, I likewise distinguish by a name, and call it the sun's amplitude ; so that I now have two circles that shew his situation with regard to the horizon, or, I know that if I turn my face to such and such a point on one side of the prime vertical, I shall see where the sun will set ; and if I reckon



reckon so many degrees of height on the vertical circle he is in, I shall see the very point he then occupies. Again; if it were my desire to refer the sun to the meridian, I would first observe in what vertical he was, and then reckon the degrees on the horizon betwixt that vertical and the meridian; and I should say, that the sun is so many degrees from the meridian reckoned on the horizon, or, for the sake of shortness, make use of an Arabic word, and say, the *azimuth* of the sun is so much.

If I referred the sun to the equator, I would observe how many degrees he lies from it to the north or south, and thro' the point where he was, I would suppose a circle parallel to the equator: the space betwixt this circle and the equator, I would call *Declination*; so that if the sun were  
 twelve

twelve degrees to the north of the equator, I would say, that the *declination* of the sun was twelve degrees. Again; I might refer the sun to the degrees of the equator itself; for, as he does not always rise and set at the same hours, a different degree may rise and set with him: for instance, at the time the sun rises, perhaps it is the thirtieth degree of the equator that rises with him; I may therefore point out his place in the heavens on such a day, by saying, he is even with the thirtieth degree of the equator; or, to make use of a more concise way of speaking, his *right ascension* is thirty degrees. Again; I may refer the sun to the ecliptic, and, as there are also three hundred and sixty degrees in this circle, and as he every day of the year corresponds to some different part of this ecliptic, I ob-  
serve

serve what degree of the ecliptic is in the meridian, and I conclude the sun is then in such or such a degree of the ecliptic; or, more concisely, I say the *longitude* of the sun is so much; for it is along the ecliptic we must reckon his longitude. If I should make my observations on another star, that is not in the ecliptic, but placed on one side of it, then I measure how many degrees there lie betwixt the ecliptic and that star, north or south; and I say, such and such a star lies so many degrees north or south of the ecliptic: or, in other words, the *latitude* of such and such a star is so much; for the sun himself can have no latitude, as he never appears to move from the ecliptic.

You thus see, Cometilla, that with the help of a little observation, and a simple

174 COMETILLA; OR,

simple quadrant, we shall be able to point out the exact point that any star may at any time hold in the heavens; for we may determine it, either by shewing how high it is above the horizon, that is its *Altitude* in a vertical circle; or, how far it is distant from the east or west points of the horizon, reckoning upon the horizon itself the degrees betwixt the vertical it is in, and the prime vertical; this will be its *Amplitude*: or, we may reckon how far it is from the meridian, by numbering upon the horizon how many degrees lie between its vertical and the meridian; and this will be its *Azimuth*: or, we may mark what degree of the equator comes with it to the meridian; and this will be its *Right Ascension*: or, we may observe how far north and south it lies from the equator; and this will  
be



be its *Declination* : or, we may attend to what part of the ecliptic it holds ; and this will be its *Longitude* : or, how far north or south it lies from the ecliptic ; and that will be its *latitude*. So that we have these seven ways or points, to tell us what part of the heavens any celestial body is in :—the altitude above the horizon ; the amplitude from the east and west points ; the azimuth from the meridian ; the right ascension on the equator ; the declination from the equator ; the longitude on the ecliptic ; and the latitude from the ecliptic.—But we are now at our rendezvous : I shall defer the sequel of this subject to another opportunity ; it is my present business to resume my hoops, and resign the task of instruction to our sensible and amiable Cometilla.

176 COMETILLA; OR,

VIEW TWELFTH.

**I** NOW give you leave, said Cometilla to Marco, to quit the western point of your course, and to move down the hill with all your hoops about you, until you come to the south point, or the bottom of the declivity. As we are thus walking down, Phœbe, or our sun, seems to rise to the top of the hill with respect to us; that is, when the earth is in the north point of its course, the sun is then in its highest position with regard to it: and if a line were just now drawn from Phœbe's feet, it would fall on your tropical circle, or the hoop you imagined going round your shoulders. Your polar circle;  
or

or the hoop round your temples, will be entirely exposed to her, and as you turn round yourself, you may observe that there is very little of the northern part of you, that is, of your upper part, that is not in the light of the sun, or, if you please, in the sight of Phœbe; for it is easy to mistake his rays for her eyes. In this situation, you will have your summer, and your longest days and shortest nights; for the rays fall full upon you, and almost the whole of your upper circles roll continually in the sun's radiance. While your upper polar hoop is incessantly exposed to the rays of the sun, your under polar hoop, or your south polar circle going round your knees, is wholly buried in darkness, and Phœbe's eyes cannot perceive it; that is, the heat and light of the sun

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cannot

cannot approach it. All the space comprehended betwixt your north polar hoop and your middle hoop, that is, all the regions between the polar circle and the equator, will, in this position, be longer in the light of the sun during the day, than they are out of it during night: and all the countries placed betwixt the under polar hoop and the middle hoop, or between the south polar circle and the equator, will be longer out of the light of the sun than in it.

Now, if you leave this, and walk up to the east point in the middle of the declivity, you will there again have the half of all your hoops in Phoebe's sight, and the other half exactly out of her sight, and she will seem to you to be in the west of the declivity; that is, the days will again be equal to the nights, and the earth, when  
in



in a similar position, will have its autumn. Proceed from this upwards to the top of the hill, and Phoebe will appear to be at the bottom. Your northern, or your upper hoops, or circles, will then be almost wholly turned from the eyes of Phoebe, but your under hoops will be in a direct line with her : that is, the position, then, will be quite the reverse of what it was at the bottom of the hill. The space from the south polar circle to the south pole, will be all in the light of the sun ; from the south polar circle to the equator, the greatest part will be in the light of the sun ; from the equator to the north polar circle, the greatest part will be turned from the light of the sun ; and the space from the north polar circle to the north pole will be entirely in dark-

ness. This will be our winter in the north, and summer to those who live in the south. And now if you return down the declivity to the west point from whence you departed, you will have finished your annual course, and begin again to enjoy another spring.

I have thus far intruded on your attention, with the ill-expressed conceptions of an embryo astronomer; but you have them as they lay in my mind: so, claiming no other merit but that of emulation, may I intreat our protector to lead us to the observatory, and there confirm the view he has so ingeniously contrived upon this hill?

I am all eagerness, added instantly Fanny, to see a place of which my sister has spoken so highly.—The moment our Cometilla had ended her elegant and concise explanation of the  
annual

annual motion round the sun, replied Marco, I was about proposing what you now request. Nothing serves so much to impress truth strongly on our minds, as to see it represented in various attitudes and shapes. So, as it seems to be the wish of all, let us up to the peak.

They were on their way thither, when Cometilla, looking back, observed, with a degree of astonishment, that they had left Phœbe behind. On their turning round they saw her, with her arms folded and her eyes fixed on the ground, in the very same spot where she had been put in place of the sun, nor did she start from her reverie till the noise they made on observing her position had awakened her. —She ran up to them, not a little confused, but a blushing smile was her best apology. Cometilla, turning to Mar-

co, said, I am much mistaken, if a discovery has not been made : recollect the fan !—I suspected as much, replied Marco. My dearest Phœbe, continued he, we will forget your momentary absence, only on condition you will communicate the result to us. Whatever condition, returned Phœbe, my kind protector imposes, I will ever fulfil it with delight, as long as it is in my power : for, however unimportant or trifling my thoughts may be, I well know there is readiness in you to set me right, and, looking to Cometilla and Fanny, friendship to forgive me.

You have often told us, Marco, that, of many ways, the simplest must be that which nature pursues.—You have also somewhere said, that the earth is endowed with many different motions, no less than three, if I remember



member right: one round itself, or round its own axis, which makes day and night; another, by which it advances onward in its road round the sun in a year; and a third which draws it a little back; but this last you have left to be explained at a future opportunity. However, it strikes me very forcibly, that these complicated motions, which you tell me astronomers look upon as very distinct things, are all of them one and the same motion. Here Fanny and Cometilla smiled; but Marco, looking affectionately eager on Phœbe's delicate and sedate countenance, begged her to open her mind to him.

The thought that lies in my mind, continued Phœbe, requires but little explanation: it is simply this:—The Earth has but ONE motion, and that

motion is spiral: for I recollect that a screw, if not withholden by the hand, advances, not by pushing it forward, but by turning it round; and a boy's top never moves round itself, without forming a spiral line in the dust: now, if you apply this to the globe of the earth, it appears to me, that, when the Author of all motion launched the ball we live on, the beginning of its movement was the beginning of a spiral line, or of an oval screw; the first turn of which made the first day, and the turn immediately below that, the first night. I therefore am apt to think, that distinguishing the progressive from the daily circular motion of the earth, is only breaking or interrupting a regular motion already begun, and going on in an uniform spiral:—and as for that other backward or nodding

nodding motion of the earth, I should suppose it to be no more than the same spiral line, a little modified by the peculiar shape of the globe: for I have observed, that one boy's top, by being more or less rounded off than another boy's, has had a more uniform, or more nodding motion than the other, and this very difference may possibly take place among the variously-shaped bodies of the planets: but still I imagine, there exists but one, simple, spiral motion in every body that is once made to roll round itself; and this seems to me to render the work of nature more admirable, since so many varied and beautiful effects are ever flowing from one single motion.

Before I pay the tribute of praise, said Marco, hastily, due to your ingenious penetration, let me draw a  
consequence

consequence of no small importance, from your discovery: if, therefore, from what you have said, Phœbe, we could know the exact shape of the globe of the earth, I have no doubt but that we might determine, with much greater exactness than has hitherto been done, the ellipsis the earth makes round the sun, the nodding or nutatory motion round the axis of the ecliptic, and probably the real causes of so many optic illusions, which have tortured the heads of the best astronomers. Thoughts of this nature run like wild-fire, said Fanny, turning to Phœbe: give me leave, my love, to ask you, if your spiral line, round the sun, might not be compared to a screw-stair-case round a vast dome, or round its own central pillar? If it can, I immediately give into your opinion, that there is but one motion  
in



in the earth : for the person who mounts a stair-case, of the nature I allude to, has evidently but one motion, that is, upward or downward, but so modified as to continue ever turning round the central pillar, while it still keeps advancing ; so that the circular and progressive are here clearly resolved into the simple spiral.

What is my top to this illustration, said Phœbe, taking Fanny's hand ? How amazingly plain the conception is now !—I think it is indeed, said Comerilla ; for I should hardly forbear laughing at the astronomer, who, seeing us just now winding our way round this peak, would attempt to persuade me, that my body has two distinct motions ; and yet I apprehend, when we arrive at the top of it, we shall have made a circle *round* it, as well as our way *up* to it.

You

You have managed this business so judiciously, said Marco, looking at them one after the other, and so delicately, that it were presumption in me to add a single word. Besides, we have now performed our spiral, Cometilla; here is the observatory. Let us see if it can give any additional entertainment to your sister, who, I fear, has felt the ascent too hard for her. We will in, and refresh ourselves.

Fanny's emotions were akin to rapture, when she had ascended and stepped into the umbone. Phoebe was instantly busy in preparing a cool beverage. Cometilla, as she threw her eyes over the wide prospect round her, experienced a return of the same sensations she had felt, the first time she had examined the features of Marco, in that sweet spot.—Marco, who was  
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the living picture of his ill-fated son, particularly in the moment of meditative melancholy, could never ascend the umbone without casting a wistful look over the far distant ocean, which seemed to rise from the furthest verge of the horizon like a cloud of deep azure. While Marco's eyes were fixed on the main, Cometilla's were rivetted on Marco, till Fanny, who had now examined the beautiful landscape, stepping in between Cometilla and Marco, said: These, it seems, are the haunts of inspiration! but, as I long to visit the whole of this enchanted castle, you must allow me to break in upon your meditations. They both looked conscious of having been observed; and Fanny began to suspect that there was something more in this mutual reverie, than the stillness of the place could

account

account for ; her thoughts, however, she reserved for a more opportune moment, when, she trusted, her sister would withhold nothing from her that might satisfy her alarmed heart.

Phœbe now turning round with refreshments, Marco seized on the opportunity of changing the subject, by inviting his fair friends to do honour to Phœbe's attention, by tasting what her beechen cups contained.

After a short space of varied conversation, they were now ready to descend into the system. Fanny was all astonishment at the first sight of Marco's world, which had unexpectedly struck her as she entered the Gothic door: and, as she stepped down the oblique terrace, she was amazed at the prodigious capacity and splendor of a building, the outside of which promised so little.



Marco led her round, and, to his great satisfaction, found she understood perfectly well the contrivance and purport of the whole. He then touched a spring, and a settee arose from the bottom of the concave, on which he requested them all three to be seated, while he should proceed to exemplify what Cometilla had explained on the hill, in a manner that would not leave a doubt on their minds.

They were placed, eagerness and pleasure in their lovely countenances. Marco, stepping on a rest, which likewise rose by the means of a spring, took down the ball of steel that blazed in the centre, and in its room substituted a globe of crystal, with strong lights in it. He then shut the windows of the system, arranged the mechanism of the ball of the earth,

192 COMETILLA; OR,

earth, set it in motion, and stepped back himself on the oblique terrace, or rather the ecliptic of his system. The ladies could not help witnessing their surprise in a very joyful manner, finding that they themselves went round on their settee, as the ball of the earth went round the globe of light, or the sun. After some expressions of danger, however, which Marco convinced them they had no reason to fear, he begged their attention to what he was about to say.

I have purposely placed you, my fair companions, said he, within the oval that the ball of the earth makes round this sun of ours, that, while you go round with it, you may thro' the whole course observe how the light and the heat fall upon it: I myself shall go round with you too, but I shall

shall walk behind the ball of the earth, on this ecliptic or oval terrace; of course, you understand, I shall only see the darkened side of the earth. This oval terrace you must all along suppose to be the celestial ecliptic, because, you see, it adheres to this concave vault which represents the firmament of the fixed stars, where they are set in their due distances and places. Keep your eyes fixed on the circles that are represented on the earth as it goes round, and observe at the same time, that every one of those circles has its correspondent circle all round it, fixed to this starry vault, and endeavour to be prepared to give me the observations I shall from time to time beg of you.

Mark, that in the first instance you must observe the spot where the earth is just now placed. This you

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can no otherwise do, than by remarking what group of fixed stars lie upon this concave, exactly behind the earth, or exactly behind me, as I am precisely behind the ball of the earth with respect to you : for, these stars being fixed, will be sure marks for you to refer the place of the earth to, during the course she is about to make. Tell me then, amiable Cometilla, what star, or group of stars, or what mark do you perceive as you sit just now, behind the ball of the earth ? Why, said Cometilla, rising— You must not rise, my sweet friend, said Marco hastily, your eye is at a proper height as you are seated, for I have so contrived it, that you will see the stars as you sit, in the same manner as you would do were you upon the earth.—Then I think I see, rejoined Cometilla, re-seating herself, a bright star in one of the wings of  
that



that constellation which you formerly called the Virgin.—Ha! how's this? said Fanny eagerly, if I'm not mistaken, I see, directly behind the earth, the sign, or the character of the sign, which Astronomers call the *Balance*; and this sign, Marco, you appear to have inadvertently placed in the constellation called the Virgin! Might there not be something wrong there?—Marco looked delighted at the keenness of the remark, and thus answered her:

Your observation is excellent, but you shall see that there is no mistake in the matter.

A venerable old astronomer, whose name was Hipparchus of Rhodes, the most celebrated of the ancients in this science, made a discovery in his time, by an observation such as our Fanny has just now made. Time out of

mind, astronomers had observed that the constellation called the Balance, lay exactly in the point where this ecliptic and this equator cut or cross each other in the heavens: they therefore called that point the equinoctial point, or the sign of the Balance. But Hipparchus, by repeated observations, found, that at that season of the year when the days are equal to the nights, the stars which compose the constellation of the Balance had crept out of their place, where the equator and the ecliptic cross'd each other, and had got on towards the east; that is, he found they had gone a considerable way further from the equinoctial points than they had been in the time of Eudoxus, another astronomer, who lived about three hundred years before him. This advancing of the stars towards  
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the east has ever since been increasing, and I have observed that every hundred years they make one degree, twenty-three minutes, ten seconds, and that the total revolution of the fixed stars eastwards, back to the equinoctial points again, will be only compleated in the space of twenty-five thousand nine hundred and seventy-two years. Just now you see the constellation of the Balance has got one whole sign, or thirty degrees, from the intersection of the equator and the ecliptic, towards the east, and the Virgin has succeeded to it in the equinoctial points: however, to avoid confusion, astronomers have still retained the name of the Balance, with this difference, that instead of considering the constellation or the stars of the Balance, they have formed a character or a

198 COMETILLA; OR,

sign, which they continue to place in the equinoctial point, and call it the Sign of the Balance, not the Constellation: so that you must not forget that a constellation is merely a clump of stars; whereas a sign is a space of thirty degrees; as, in this instance, you may observe the constellation of the Balance is a considerable way from the earth, while the sign of the Balance lies directly behind it.

But, my dear Marco, said Phoebe, this motion of the stars is quite a new thing to me: pray what may be the cause of it?—A mere optic illusion, answered Marco; flowing from the figure of the earth, and perhaps from the power of the sun and moon. You remember the consequence I drew from the idea of your top? But this is a subject we must resume on a future occasion; just now, you must think



think of beginning a voyage of above five hundred millions of miles, so you see we have no time to lose: let me therefore again beg our Cometilla to inform me what star or sign she observes behind the earth, in its present position?—Now, replied Cometilla, I think it is in my power to answer you less injudiciously: the earth, at this moment, corresponds to the sign of the Balance.—And if you turn your head, Cometilla, and look at the sun, what mark or sign do you observe behind him?—The sign of the Ram, replied Cometilla.—So that when the earth is beneath the Balance, rejoined Marco, the sun is seen from the earth beneath the Ram. What observation have you to offer on this position of the earth, Cometilla?—Such as it is, you shall hear it, replied the attentive beauty.

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I plainly see, that, while the earth, now placed beneath the intersection of the ecliptic and the equator, and consequently in the plane of the equator, makes a revolution on its axis, the light that is darted from the crystal globe, or our sun, falls perpendicularly and directly on the centre of the ball of the earth, and reaches from pole to pole : I observe that every spot of the terrestrial surface is successively enlightened, and twelve hours in the light of the sun, and twelve hours out of it ; that is, that the half of every circle, from pole to pole, is successively in the light of the sun, and out of it ; for which reason the days, in this position of the earth, must be equal to the nights.

The voyage begins extremely well, said Marco: take notice, now, that we are descending to the lowest point of  
the

the oblique terrace, and that the ball of the earth keeps turning round her own axis as she advances : mark well how the circles gradually change their position with regard to the flood of light that pours from the sun : here I shall put a stop to its progressive motion for a moment or two ; but it shall still preserve its circular movement. Tell me now, my Phœbe, to what star or mark does it correspond in the heavens ?—To the sign called Capricorn, or the Goat, replied Phœbe ; and now that I turn my head round, I think I see the sun correspond to the sign of the Crab. In this position of the earth the middle of the body of light falls obliquely on the terrestrial equator ; the northern pole, I observe, is always in the light, and the southern pole is always in darkness. All the regions  
I see

I see betwixt the northern polar circle and the terrestrial equator, have that part of their circles which is in the light of the sun greater than that which is deprived of its rays; therefore, I suppose, their days must be longer than their nights: whereas I see that the countries between the south polar circle and the equator, have that part of their circles which is in the light of the sun, less than the portion that is deprived of it; therefore their days must be shorter than their nights: and the tracts contained between the north polar circle and the pole are constantly in the light of the sun, while those to the south are always out of his light; this, therefore, I fancy, must be our summer, as we live on the north of the equator.

Your observations are extremely  
just,



just; and now that the earth recommences its progressive motion from the Goat or bottom of the oblique terrace, what do you remark, Fanny?—I perceive, said she, that while the ball mounts from west to east, its axis is ever parallel to itself; and that, as the light leaves the northern parts or circles, it gains upon the southern regions, or south polar circles, in the same proportion: and, now that you have stopped its progressive motion, I see that the sign that lies behind you, or behind the ball of the earth, is that of the Ram; and as I turn my head round, I observe that the sun corresponds to the sign of the Balance on the other side of your starry vault. The flood of light falls upon the earth when in this position, as it did when the earth was beneath the sign of the Balance;  
that

that is, perpendicular to the middle, or to the equator of the earth; so that here again all the circles have one half in the light towards us, and the other half in the dark towards you; and we here see that the days again are equal to the nights, or that it is now autumn. But I perceive you have allowed the earth and us to advance; and that the light is gradually quitting the northern circles, and spreading proportionably on the southern. Now, I see, you have again stopt its progressive motion, and it corresponds to the sign of the Crab, which lies behind it on the concave. As I turn my head round, I see the sun corresponds to the sign of the Goat, at the bottom of the ecliptic. Now it is that winter begins: the rays of the sun fall obliquely on the equator: the southern pole is entirely

tirely covered with them, and the northern pole is wholly turned from them, or in darkness. As the earth revolves round herself, the parts of the temperate and torrid zones that lie towards the north, have but a small portion in the light; the greater must therefore be in the dark, towards you: whereas the best part of the south torrid and temperate zones are in the light; and therefore there is but a small portion in the dark: so that now, to us in the north, the days are short and the nights are long; whereas the contrary must happen to the people who live south of the equator. Now again I perceive we begin to descend from this uppermost point of the terrace or ecliptic; the light leaves the south pole by degrees, and imperceptibly spreads itself in the same proportion on the north pole: and  
now,

now, at last, the earth again corresponds to the sign of the Balance, and we are at the end of our journey.—And since it has been so fortunate, said Marco, let it be the end of this very long View.

The ladies were loth to leave Marco's system; but, after a promise that they should return thither, the very first View they should take, they were prevailed upon to quit the enchanting peak, and make the best of their way to their no less enchanting cottage.

VIEW



## VIEW THIRTEENTH.

**A**FTER a night of peaceful slumber, to all but Fanny, the little society were now met for their morning repast, beneath a beautiful arcaſſa, ſprinkled with twining nasturtians, that overſhadowed one window and a part of the door of the cottage. Cometilla no ſooner caſt her eyes on Fanny, than ſhe obſerved ſhe had been crying. Fanny endeavoured to ſmile away the cauſe of her uneaſineſs; but Phœbe, with all the ſoft entreaty of the tendereſt of friends, begged her, in the name of Heaven, not to conceal from her the ſource or occaſion of one moment's unhappineſs. Marco's concern was too viſible in his countenance,

nance, not to solicit Fanny's acquiescence.

Indeed, said she, bespeaking their indulgence with a timid blush, I am very wrong thus to alarm the feelings of the best of friends, thro' my excessive weakness. You must be displeased, when you hear the cause of my low spirits; but I have suffered so much, that even dreaming of the author of my misfortune recalls my fears.

Last night, methought I was walking with Phœbe along the banks of the river that runs in the dell behind the grove; when all of a sudden a little shepherd's boy ran up to me, and told me not to go on, for that there was a wild beast, who had got into a farm near the next winding of the river, and that all the cottagers had run into holes and corners to  
save

save themselves from his fury.—  
 While the child was speaking, I  
 thought I saw a very tall man, his  
 face and hands covered with blood,  
 making up to us: Phoebe flew off,  
 and, while I was endeavouring to fol-  
 low her, methought I fell, and as I  
 lay in all the terrors of death, a loud  
 clap of thunder seemed to shake the  
 grove: a few minutes after, I ven-  
 tured to raise my head from the  
 ground, and observing nobody near  
 me, I mounted up a steep hill as fast  
 as I could, and when I had clambered  
 to the top of it, who should I  
 again see but the same little shep-  
 herd's boy, walking with an old fe-  
 male cottager?—I ran to them, and  
 begged the good woman to take me  
 to her hut, for that I was extremely  
 frightened. The little boy shook his  
 head, and walked away from us.—

P

The

The old woman then led me very courteously to her cot, and fastened the door: no sooner was I entered, but I saw a wild beast, something like a wolf, rushing towards me from a corner of the cottage where it had been concealed. I screamed, and the moment I thought it was ready to devour me, an unknown man, of heavenly aspect, felled it to the ground; its horrid roarings, as it lay weltering in its blood, wakened me, and I found myself drowned in tears.

You really were, sister, said Cometilla, extremely agitated, the best part of the night: but you must not think any thing of this: you may be sure the cause of your fears will not so soon cease to haunt you, as you might imagine; and the best thing you can do, is to let your thoughts dwell



VIEWS OF NATURE. 211

dwell on them but as little as possible.

Marco was of Cometilla's opinion, and prayed his lovely frightened friend to make no other use of dreams, than to keep her on her guard against danger. They were something like good advice, he said, given by a weak person; and to profit by advice, in any shape, argued a sound mind. Saying this, he begged them to amuse themselves in the best manner they could till his return; as he wished to have a few moments to himself, in order to prepare matter for the succeeding View.

They withdrew into the cottage; he shot thro' the thicket, and directed his steps to the lawn, that lay betwixt his cottage and the first few huts that were nearest it.

It is the duty of every man of com-

mon sense, said Marco to himself, as he went, to satisfy his anxiety on a subject that may be attended with foul consequences: The boy I had sent to Cometilla's father, with the letter, has never yet returned to inform me how he succeeded in delivering it, and returning unnoticed. I blame myself for not inquiring into this sooner: the boy I have employed on many occasions, before now; but this is the first time he has ever been remiss in giving in his answer. However, vain fears are as bad as want of caution: I now mean to see him, and trust nothing has happened.—As he was thus reflecting, he observed the boy at some distance, tending his flock; the moment he caught Marco's eye, he threw down his crook and flew from him thro' a  
hazel

hazel copse that lay on his way to the huts,

Marco began to be alarmed; but, on reflection, thought it was better to conceal himself, and wait the return of the boy to his flock, than go in search of him, at the hazard of not finding him, and bruiting abroad the affair besides.

Something must have happened, said Marco, leaning his head on his arm against an old oak, else why this sudden flight? The boy used to witness unaffected fondness towards me. The secret must have been extorted from him; for I think I know his disposition to be good: or perhaps he has been traced and followed home: or he may have lost my letter: or— At that moment the young shepherd, thinking Marco had proceeded to the huts, made his appearance thro' the

copse, directly behind the tree against which Marco was leaning, but so as to have his back turned to Marco. The boy was advancing step by step, stooping forward with timid looks, when he felt his arm in the hand of Marco; he gave a pitiful cry, and, falling on his knees, looked up to his venerable friend with a look that spoke innocence, yet implored pardon. Marco, taking him by the hand and bidding him rise, spoke to him in the kindest manner, and told him he was not angry with him; he was only surprised he should run off and leave his old friend. As Marco continued to speak, the boy still wept more and more. At last he said, he would tell every thing; so, sitting down by Marco on the trunk of a large tree that lay on the brink of the rivulet, he, in a few words, gave  
Marco



Marco to understand the cause of his fear and flight.

“ After you intrusted me with your letter, said the weeping shepherd, I flew to deliver it, with all the care and diligence I could. I had no difficulty in finding the house out, by the directions you gave me: but what I was most uneasy about was, how I should get it safe into the hands of some of the servants; for when I came up to the outer gate, I saw a genteel sort of a man standing at the entrance; so I walked by and seemed to go on, for I did not know who that man might be. I went on and turned the corner, and in about six minutes returned, thinking he might be gone, and that should have an opportunity of slipping into the stable-yard, and so seeing somebody that belonged to the house:

but the gentleman was still there, and observing me return, he called out to me, who I was, and what I wanted?—I was afraid: so I told him that I did not want to do any harm; that I only wished to see one of the servants. With that, he came up to me, and said he was one of the servants, (the head butler, he called himself) and that if I had any message he was the proper person to deliver it to. I told him I was very glad; so I gave him the letter, and as he was looking at the direction I made off as fast as I could go.

I was so pleased with what I had done, that I never thought of turning my head until I was just entering my father's door, when, on looking round, who should I see on the other side of the brook, but that same gentleman, who, it seems, was as quick

quick as I was, and appeared to examine the place about my father's cottage. But this is not the worst; I am afraid that man is very wicked. The very next day, a person wrapt up in a great coat came to my father's; and when I returned from the fold in the evening, I was quite terrified to see it was the same person who took your letter at the door of the great house: as you had forbidden me to say a word of the matter either to my mother or father, I held my tongue, but I began to doubt I had given the letter to a wrong person, and durst not afterwards, for my life, venture to come and tell you. This person knowing me again, was very kind to me, and bade me not talk of having seen him, and offered me money; which I would not take: but after I had gone to bed I heard him  
say

218 COMETILLA; OR,

say to my father and mother, that if they would keep him concealed there till the ladies of the hill should pay them a visit, (for my mother had told him all about them, and how they very often were so good as to come and see her, and were very good to her) he promised her a great deal more money, for he said that one of those ladies was his relation, and that, on account of a little quarrel they had had he wished to make it up with her again. He then asked when she expected they would walk that way, and whereabouts he might hide himself while they were chatting with her. My mother told him she had not seen them for two or three days, and therefore expected they might call in to-day or to-morrow; and that he might conceal himself behind my bed partition. I wished very  
much



much to let you know all this; but I perceived I had done something wrong, and could not, any how in the world, think of appearing before you."

My dear boy, replied Marco, with a satisfied countenance, you have done as well as you could; but the information you have just now given me is the best thing you ever did in your life: for which service I'll take care and make up for the money you so generously refused. Mean while, you must make all the haste you can, and desire Goodman Stackhouse and Goodman Barnet to come to me at my cot immediately; and when you shall have done that, return hither, and drive your flock so near your father's, hut, that you may have it in your power to fly to me, and let me know  
if

if you should see the ladies taking their walk that way.

The young shepherd, overjoyed to have made it up with his friend, flew like lightning to execute the commands of Marco; who, on his side, hastened back to the cot, determined to make the best of this opportunity for the purpose of branding villany and punishing guilt, so as to satisfy virtue and honour.

On his arrival, he was not a little alarmed to find the ladies were not in the cot; they had profited of the serenity of the evening to taste the balmy air. But the young shepherd had been expeditious enough to have the two swains ready the very moment Marco was about to express a wish for them. There was not a cottager in the vicinity that did not  
adore

adore Marco ; so that he stood in need of little persuasion to bring them over to his design. They were both of them stout and strong to a prodigy ; it was for this reason that Marco had pitched upon them in particular. He gave them to understand, that the ladies they all loved so well were in danger from a villain, who was just now concealed in farmer Mulberry's house, and that he wished them to accompany him as secretly as possible to the back part of the house, for he suspected that the ladies were now gone to take their evening walk that way.

Saying this, he provided them with oaken sticks, and desired them to hasten to the back of the farmer's hut, and be ready to join him at the first call. The boy had already gone to  
his

his station; and Marco, after having slipped a brace of pistols into his pocket, did not wait his return, but set off immediately, with all the speed he could, towards the hut.

On his turning round the copse, he met the youth rushing thro' it. They are just now gone in, said he, out of breath: the ladies are gone into my father's.—'Tis very well, replied Marco, increasing his speed; Your mother suspects nothing?—O nothing, answered the boy; but she has persuaded my father to be out of the way. I understand her, rejoined Marco: Is there a back door that leads into your cot?—Yes, answered the young shepherd, there is one on the side that looks to the brook, where you may go in without being seen, and hear and be witness to every thing. By this time they had reached



ed that end of the hut, and the boy pointing the door out, Marco whispered to him to wait in the farmyard, and watch which way the stranger took, in case he escaped. He then softly entered.

Phoebe and her two friends had now been seated for a few minutes, to repose themselves, as usual, after their walk; but Phoebe, on her making the wonted enquiries of kindness, relative to the old woman's health and affairs, wondered to observe a sort of fear and consciousness about her, that she had never before remarked; so, thinking the poor woman was not well, or that they had paid an unseasonable visit, the ladies stood up and were taking their leave. At that instant, Werdan, who had thrown off an old rug that hid him from their eyes, stepped suddenly before

before them, and placing a pistol close to Fanny's bosom, swore a tremendous oath, that if any one of them made the least noise, or moved from the spot she stood on, she was a dead woman. Horror and chill fear held them mute, while the miscreant thus proceeded: "I had lost one, I now recover both: before we again part, you shall both of you be as humble and obedient to my desires as you once were haughty and disdainful. Your father you never again shall see; I will lock you both up from every human eye, till you become so familiarized with mine, that you shall hail them as two stars of comfort, whenever I honour you with a sight of them. Enjoyment shall only be a second pleasure, my first shall be revenge for the contempt you have shewn me. Your father is now convinced

vinced by me, that you are at this moment two wretches abandoned to the world; he has given up all hopes of you: I therefore have the means of effecting whatever passion or desire may prompt, and by the blood that burns in my veins, your resistance shall convince you how much you are in my power.—Coward! said Marco, suddenly stepping in betwixt him and Fanny, his pistol aimed at Werdan's breast, you are yourself in my power: drop the dastardly arm you thus use against a woman, and receive the punishment for which justice sent you hither. With these words, Marco called aloud, and ordered the two hinds to appear. Werdan, on their bursting in, was about to raise and make use of his pistol; but Goodman Stackhouse perceiving it, and fearing for Marco, struck him so forcibly on

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the

the arm with his stick, that the pistol fell to the ground, and the arm hung useless. Marco, observing the ladies pale and almost dead with fright, entreated them to step to the door; they tottered out. He instantly made the old woman muster up the strongest ropes she could find in the cottage, and while he still held the pistol at the villain's breast, forbidding him to utter a word under pain of immediate death, he made the two hinds tie his legs and arms, so as effectually to deprive him of all kind of motion: he then desired Goodman Barnet to prepare one of farmer Mulberry's carts, and, after throwing the wretch into it, to convey him to the barn of Goodman Stackhouse, and there keep him upon bread and water, and have a strict watch over him, till he should hear from him.

They



They attended to Marco's orders as to those of a Divinity, and departed with their prisoner. Marco, casting a look of indignation on the old woman, stept to the farm-yard, where the young shepherd was still on the watch : Come, my good boy, said he to him, the business is over ; come along, you must go home with me. He took him by the hand, and they went round to meet the ladies ; they were sitting on a bank of green sod by the door, Phoebe administering all the aid she could to both the sisters, who were just recovered from fainting : Marco begged them, with looks of the sweetest composure, to endeavour to rouse up spirits enow to leave that place, and return home : that every thing was as it should be ; and that if Cometilla and Fanny would each take an arm, he would

Q 2

convince

228 COMETILLA; OR,

convince them, as they went along; that henceforth they should have nothing to fear.

The two sisters looked thankfully and gratefully in his face, rose up, and took each an arm: they were not yet able to speak; and Phoebe perceiving the little shepherd, for whom she had always had a singular liking, took him by the hand, as Marco told her it was his wish he should go home with them. They set off, and, by the time the evening dew began to refresh the lawn, they all in silence arrived at the long-wish'd-for cottage.

VIEW

## VIEW FOURTEENTH.

**T**HE sun was now verging to the west, and the three fair friends, since the moment they rose in the morning, had neither seen nor heard of their protector. Their hearts were full of the most dreadful doubts. The fright of the foregoing day had increased Fanny's illness, so that Phoebe and Cometilla were obliged to conceal their own apprehensions concerning Marco's absence, in order to guard Fanny's spirits against a relapse. They had not ventured to quit their cot; nor was there a leaf that rustled, or a gale that blew without, that did not recal the adventure of the preceding day.

Q 3

Phoebe,

Phoebe, who had already satisfied herself that the little shepherd had not been to blame, and that it was fear alone that had kept him from returning to Marco, asked him, (for Marco had left him in the cottage) if he did not think that his mother had acted very wrong in allowing a man she did not know to lurk in her house, and who perhaps might have been a robber, or something worse? Dear lady, replied the boy, I thought she did very wrong indeed, and I told her so; and she beat me; and when I said I would tell the ladies on the hill, she told me if I dared do it, she would turn me out of doors; for that she only kept me on charity, and that I was none of her's; and that she wished to God that the wretch, who had left me with her, would return, and pay her for all the trouble she had had,



had.—What, said Phoebe, are not you their son?—It seems not, lady; for my father, (that is, he I used to call my father,—farmer Mullberry) answered her; Well, well, dame, never mind it; it is not the urchin's fault; if he behave himself well, he may still pass for ours; and you know, with regard to the being rewarded for our trouble, the father, in leaving him with us, gave us that shagreen box which lies in the press behind the bed, and said, if the child was never owned, we should be well repaid by selling in town what that box contained. And so we will, returned his wife;—and then a neighbour coming in, they put their fingers on their mouths and stopt: it was after that I went to tend my flock, when the good gentleman that lives here with you, caught me as I

was wishing to avoid him, and made me tell the whole story about the letter he had sent me with, and the man who was hidden in farmer Mullberry's house; for I never can call him father now, since he disowns me; and indeed they were always both of them so cold and unkind to me, that I never loved them so much as the good gentleman, or you, lady.

Phœbe, during this innocent recital, never once took her eyes off the features of the child. Cometilla said, Phœbe, that heart of yours is a heavenly one. Sensibility has drawn a tear from each eye. I did not know it, answered Phœbe, with a pitying smile, as she wiped her cheeks: there is something in this little fellow's features that rivet me to his story. I am sure, said Fanny, he does not seem made to live among clowns.

clowns. They then asked him his age, with several other questions, that convinced them all three he could not be the child of such parents.

While they were thus examining the circumstances of the young shepherd's life, they heard a noise at the door, which they had cautiously kept well locked and bolted. The boy flew with the speed of gratitude, thinking it was Marco: he looked through a small window at the side of the door, and perceiving Goodman Stackhouse and Barnet, (after running back to inform the ladies) he made all the haste he could to let them in. The anxious fair ones rushed round the hinds, and asked them, all three at once, to tell them, for the sake of Heaven, what was become of Marco? Their answer was like the voice of angels in the ears of  
expiring

expiring saints : they told the ladies that Marco had set off, before the dawn, with them and the covered cart, to Marmaduke Meredith's, (here Fanny and Cometilla started and changed colour) and that, after they had arrived, Marco desiring them to stop with the cart at a small distance from the house, went in, and remained a considerable time before he returned to them ; but that, at last, he and a very fine-dressed lady and gentleman came towards them, with a great deal of anxiety in their faces and gestures : that Marco led them up to the cart, uncovered it, and shewed them the wretch within it ; who, as soon as ever he saw the gentleman and lady, shrunk down in the straw, and endeavoured to hide his face : that Marco then ordered the cart to be driven into the stable-yard, and that,



that, after untying the cords with which the captive was bound, Marco, the gentleman and lady, and Werdan, all went into the house; and that soon after Marco returning, told them to make the best of their way home, and assure the ladies that they had nothing to fear, that all was as well as it should be, and that he would soon follow them.

While the hinds were speaking, the boy, who had his eyes on the window, exclaimed aloud, There he is! I see him, I see him! They all, except Fanny, who was too weak to walk, flew to the door; and Marco, who was rapidly advancing, in a few minutes joined and saluted the three friends of his heart: he then whispered in the ear of Goodman Stackhouse, who, taking his neighbour by the arm, departed.

The

The eager group were now seated in the cot. Marco, with greater appearance of heart-felt joy than they had ever before observed, trusted they would forgive him, for the unsolicited absence he had allowed himself: he hinted to them, that, had they known of it before hand, they most probably would have been in still greater anxiety than that they had experienced. He afterwards informed them, that he had given the culprit up into the hands of those in whose power it was to punish him as he deserved. He told Cometilla and Fanny, that they were blest with sensible parents: that, as soon as they heard of the fate and preservation of their children, they fell on their knees and poured out such thanks to Heaven as could only proceed from the tenderest of hearts: that they  
were

were well, and suffered no other pang but that of not seeing their dear, their adored girls.

The sisters burst into tears; and Marco thought it prudent to change the conversation, and address himself to Phœbe, whom he observed wrapt up in deep thought. Is not my Phœbe rejoiced, said he, gently taking her hand, to see Marco? Are you not well, my sweet companion? Phœbe begged the ladies to excuse her for a minute or two, and entreated Marco to step with her into another apartment; adding, she had something to impart to him, which, till he heard it, she was sure would harrass her mind.—They withdrew.

Nothing, said Phœbe, shutting the door of the apartment they went into, nothing can equal the strange emotions my heart has felt all this day, in  
the

the company of the little shepherd you left with us. I always loved the youth, but having examined his features to-day with more care than usual, I find something in them so extremely like the still dear destroyer of my honour and happiness, so like my Frederick, that the child has made his way to my heart — But my lovely companion, answered Marco, does not mean to intimate a suspicion that he may be the child whom the cruel Frederick stole from you, thereby adding barbarity to the blackest guilt?— Ah, spare him, returned Phœbe: I would not have brought you upon this subject, my ever dear protector, so painful to your feelings, but that the boy has given me to understand he is not the son of farmer Mullberry.—How! (said Marco, starting) How! not their son! How does he know this?—

Phœbe



Phœbe then repeated what the youth had told her; and Marco, as much agitated as herself, begged her to step in to the ladies, and suffer him to go to the farmer; assuring her that he would return before night set in.

On Phœbe's appearance, the sisters were convinced by her looks that something lay heavy at her heart, and when she gave them to understand that Marco was on his way to the farmer's, they expressed a fear that the business of Werdan was not yet completed.—It does not relate to him in any manner, said Phœbe, placing herself beside Cometilla, her eyes again fixed upon the young shepherd; but if it turns out, as I ardently beg my God that it may, you shall be apprised of the whole story this very night.—I hope, my love, said Cometilla, taking Phœbe by the hand, and

I fin-

I sincerely pray, that if you or Marco are in the case, the event may prove fortunate.—But are you not astonished that neither my father or mother have written to us by Marco? they have not even begged their loves to us.—Indeed, said Fanny, in a desponding tone, every thing wears the look of mystery. It is a dreadful situation.—But Marco assured you, ladies, said the little shepherd, that every thing was as it should be; and I am sure Marco would not say so, if it was not.—You are a good-hearted boy, said Phœbe, looking wistfully in his eyes: you must always love Marco, for he has been very good to you.—But, my sweet friends, added she, turning to Cometilla and Fanny, be not alarmed; if Marco has not satisfied your hearts with the tidings you wish to hear, you may be confident there is a reason

reason for delaying that pleasure. She then related, with evident gratification, various instances of Marco's prudence in emergencies of a similar nature, and the conversation of the three beauties was protracted until night began to darken the prospect they had from the window.

Phœbe could now no longer conceal the agitation she laboured under.

—She every moment sent the boy out to hear, if possible, the step of Marco : he at last arrived, and, without saying a word to the ladies, rushed thro' them, and flying to where the boy stood, lifted him up from the ground, and hugging him close to his breast, cried, O my child, my child ! my poor long-deserted boy ! have we then found thee at last ? Then, setting him down, and turning his hands and eyes to heaven, he said, That Power who

R

thought

thought fit to make me so miserable, now begins to compensate for the pangs I have so long endured.—Here, youth, throw yourself on your knees, this is your mother!—Phœbe, my dear forlorn companion, there is your child!—Phœbe falling down on her knees, as well as the little shepherd, was straining her arms round him, but the effort was too much for her: she swooned.

The sisters stood mute spectators of a scene at once affecting, novel, and mysterious: an involuntary tear stole down their cheeks, but the joy that Marco had expressed, gave them reason to hope that this extraordinary piece of news was such as to prove an unexpected blessing to their much-lov'd Phœbe. She recovered, and Marco, seating her by the little astonished shepherd, whose hand she held  
in



in both hers, her eyes rivetted to his, thus cleared up to the anxious group, the very interesting event they had been witnesses of.

I am so well convinced of the goodness of your hearts, that what I erst while would have thought a crime to divulge to any human ear, I now, for the satisfaction of us all, cannot forbear disclosing to yours.—You see before you, ladies, an unfortunate father and widower. During my days of prosperity, that is, while I had the happiness of possessing the best of wives, my son, who was then, and I trust is still, (however miserable he may be,) the most dutiful of children, introduced to our family a youth, a bosom friend, an inseparable companion of his. My wife had but lately received from a dying friend, the last token of departing affection, the care

of a dear, young, orphan daughter.— This child soon won our hearts, so that we loved her as our own, and my wife was never happy but in the company or improvement of her affectionate Phœbe. (Here the tears ran trickling down Phœbe's cheek, as she bent her head over her boy's shoulder.) —She was at that period the most endearing picture of innocence that eyes ever saw : it was therefore natural enough for every one who visited us to be lavish in their commendations of Phœbe. My son's friend became distractedly fond of her, but as they were both then at an age, that is of itself the guardian of virtue, we looked upon their attentions to each other, as the natural disposition of youthful innocence, in love with its like. My son, however, frequently hinted to me, that his friend had for some time past

been unhappily connected with a class of companions, whose conduct he could not approve of; and my dear wife had once or twice given me to understand, that she had observed his behaviour was not at all that of the elegant and amiable youth she first knew him: I confess I was alarmed at my own remissness. I put a few gentle questions to my dear Phœbe; who gave me no other answer but her tears. I was now persuaded that all was not right; I begged Phœbe not to be frightened, but to favour me so far, as to be out of the way whenever my son's friend paid us a visit: she promised she would do whatever I thought proper; but was evidently oppressed with heart-felt anguish. I consulted again with my wife and son. My son undertook to sound his friend upon his disposition towards Phœbe;

my wife proposed lifting the thoughts of our dear child; and I myself intended managing the business by closer observation than I had hitherto done.

My son himself was, at the period I am speaking of, fatally attached to a young person of so transcendent accomplishments, that nothing but her own beauty could come up to them.— (Cometilla grew pale, cast an alarmed look on Fanny, and stooping more eagerly forward, said, Well, sir, well.)— He had long been an humble and submissive admirer, but found, by her conduct to others and to himself, that he was not born to the happiness of her hand: he pined away over his hopeless and honest passion, till the time that he proposed founding his friend on his attachment to Phœbe. The friend, it seems, did not chuse to  
be



be spoken to on the affair; and, as my son looked upon Phœbe as his sister, he forced him to an avowal of a trait of imprudence, and I fear the world will give it a worse name, which ended, I apprehend, too seriously on the side of the youth who had violated the laws of friendship, hospitality, and honour.

My unhappy son, thus disappointed in the two only blessings on earth, virtuous love, and constant friendship, left the kingdom, and is now in pursuit of more happiness on the wide ocean, under the guidance of those stars, the study of which keeps him always in my mind, and before my eyes.

(Cometilla was obliged to lean her head on Fanny's bosom. Fanny's tears witnessed the sensations she felt. The little shepherd looked tremblingly

round on all, and every other now and then wiped the swelling drops away with the back of his hand, from his fine full blue eye. Marco, heavily sighing, thus resumed his narration.)

My poor wife found no great difficulty to extract Phœbe's melancholy story. The hearing of it, went a great way towards putting an end to that life, which the subsequent departure of my son effected. She told me, her face aghast, and her words almost inarticulate, that her innocent, her dear, her heavenly Phœbe was ruined, through the artifice of my son's friend! —that he had persuaded her to sign a scrap of paper with him, by which they mutually agreed to become man and wife, alledging for reason, that when two people, so young as they, loved each other, there was no other way

way of meeting, so as not to deserve blame : — that her amiable candor saw not the snare that was laid in the way of her love ; — and that the inhuman youth took advantage of her innocence.

Very soon after this, we heard that my son had dangerously wounded his friend ; in consequence of which, one was laid up, the other disappeared ; and my wife took a long farewell of me, in all the agonies of wounded attachment, disappointed affection, and maternal love.

The unfortunate Phœbe had well-nigh followed her : it was with difficulty I saved her and her child's life ; for by this time she was mother of a sweet boy. But what gave the finishing stroke to my disgust of the world, was the loss of the babe, whom, for Phœbe's sake, I became extraordinarily

250 COMETILLA; OR,  
rily fond of. He and his nurse both  
disappeared at once.—Imagine what  
must have been Phoebe's throes, and  
the situation of my mind on this try-  
ing occasion. It is useless for me to  
endeavour to describe it to you;  
your own hearts can do more justice  
to our sufferings than my words. I  
placed the best part of my fortune in  
the safest posture possible, and, with  
an annual allowance, I persuaded  
Phoebe to accompany me to a remote  
part of my estate, where perhaps the  
serenity of nature might heal the ulce-  
rated hearts of the most unfortunate  
of her sex, and the most miserable of  
his.—Marco was closing his narrative,  
with the hopes they now had of re-  
turning happiness, when the noise of  
a carriage was heard approaching:  
the ladies started: Marco, assuming a  
more chearful countenance, bade them  
not



**VIEWS OF NATUR. 215**

not to fear—that they were upon the point of seeing faces beaming with parental rapture and unbounded love.

It was the carriage of Marmaduke Meredith and his lady, whom Marco had directed to his rural mansion.

**INDEX.**

( 252 )

# **I N D E X.**

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## **I N T R O D U C T I O N.**

**W**ORTH, not to be obliterated by time or absence.

Evening.

Cometilla's address to the Evening.

Sudden appearance of Marco.

Marco's address to Cometilla—invites her to his Cottage.

Description of the Cot.

Reception of Cometilla at the Cot, by Phœbe.

Friendship contracted betwixt Phœbe and Cometilla.

Marco informs Cometilla of the motive of their solitude.

## **V I E W   F I R S T,**

**T**AKEN from a neighbouring hill.

Cometilla's eagerness.

Cometilla and Phœbe meet Marco on the hill.

Marco is more cheerful than on the preceding day.

Marco, for the sake of Cometilla, resumes his observations on Astronomy from the beginning.

The



The more easy must precede the more intricate.

The study of Nature easy to the willing observer.

Observation first, drawn from descriptive reflections of the rising Sun.

The Horizon. The first thing to be attended to in Astronomy.

The pain of study lost in the pleasure it creates.

All the celestial bodies appear to perform their course circularly round the Earth; from East to West. How observed.

Marco proposes their return to the Cottage, after promising them some Inferences he had drawn from his first Observations.

On their return, they see a servant of Cometilla's Father quenching his thirst in a brook. Cometilla is alarmed. Marco induces them to continue their way home. He advances towards the Boy.

#### V I E W   S E C O N D .

**M**ARCO returns to Phœbe and Cometilla: their subject over their repast. Marco seemed frequently lost in thought, Cometilla often caught his eye starting from her.

Marco changes the conversation.

He begins the Inferences he had drawn from his first Observations of Nature.

He proves the Earth to be round by various natural arguments.

Marco discovers, by the apparent course of the Stars, that he neither is on the middle of the Earth, nor on one end of it, but in a situation betwixt them.

Cometilla

Cometilla ventures to observe upon what Marco had asserted.

In answer to Cometilla, Marco proves that the Earth turns round itself, and that the Stars do not revolve round the Earth.

Marco recapitulates.

He ends the View with an Astronomical description of the Sun's meridian power.

### VIEW THIRD,

**O**PENS with a distribution of their several employments; Phoebe in the Cot, Marco at the Observatory, and Cometilla indulging her own reflections in the Grove.

Some natural occurrences raise objections in her mind against what Marco had been inculcating on the subject of the motion of the Earth.

Phoebe meets her in the Grove.

Cometilla proposes her objections; Phoebe, in the absence of Marco, modestly answers them, as Marco had taught her,

They argue on the motion of the Earth.

Description of Night. Phoebe shews Cometilla the signal from the Observatory. They repair thither.

### VIEW FOURTH.

**D**ESCRPTION of the outside and inside of the Observatory.

They meet Marco, appearing from behind a Copse that grew close to the winding steps of the curious structure.

He addresses, and then places them in the Umbone or top of the Observatory.

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## I N D E X 459

He confirms the observations he had already made by an actual survey of the Heavens.

The Meridian. How imagined. The Poles. The Axis. The Equator. Their use.

Marco points out the Circles in the Heavens.

The correspondence and proportion of the celestial and terrestrial Circles.

Discovery of the division of Circles, in general, into three hundred and sixty parts.

Relative not real measure: but of the greatest utility.

The chill breeze of the morning warns them to withdraw.

Cometilla leaves the Observatory reluctantly, as she had not yet seen the inside.

Description of the Dawn. They return to their Cot.

### V I E W   F I F T H.

**T**HE attractions of the study of Nature. Cometilla's eagerness. Marco proposes to revisit the Observatory.

Marco puts a question to Cometilla, as they are on their way.

Phœbe's discovery of the Quadrant: the manner she first took the height of the Moon.

Interesting conversation betwixt Phœbe and Cometilla in the Umbone, during the absence of Marco.

Their Embarrassment on his return.

He shews them a real Quadrant, and compliments Phœbe. He explains the nature of the Quadrant.

They enter the Observatory. Marco begs Cometilla to exemplify what he had been speaking of.

Cometilla

Cometilla joyfully obeys ; and points out the several Circles Marco had mentioned : then refers the rest to Phœbe.

Marco is more desirous that they should study Nature herself, than any imitation of Nature ; and hints that the Observatory should only exemplify or confirm what they had been taught by Nature.

By a beautiful contrivance of unseen machinery, they are all three placed in the centre of the system ; prepared for the succeeding View.

#### VIEW SIXTH.

**D**ESCRIPTION of a winter night. Marco supposes them beneath a clear sky in a night of the month of January. He prepares them for the display he is about to make of the Stars.

He begins by pointing his wand to Orion ; and from this constellation proceeds to name all the rest.

He shews the use of taking a comprehensive view of the places of the Constellations.

He touches the spring and the Settee descends.

They return to the Cottage.

#### VIEW SEVENTH.

**C**OMETILLA becomes perfect in the names and places of the Constellations.

Phœbe and Cometilla wander away to the shore of the sea, and are benighted.

Description of the Sun setting in the Ocean.

They take the first path that led homewards, and return with haste and fear.

Cometilla hears a piteous moan.

Phœbe's Reflection.

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The moan is again heard. They suppose it the voice of a female, proceeding from the opposite side of the valley they were crossing.

They observe a light in a small hut. They make towards it.

Description of the hut and its inmates.

The distressing story of Fanny.

The character of the infamous Werdan.

They return home, with the poor woman's eldest daughter to conduct them thro' the underwood.

#### V I E W   E I G H T H.

**M**ARCO, after having done every thing in his power to recover Fanny, writes to her father, and informs him that his two daughters are in the hands of Slaves.

He sends the letter by a shepherd's boy.

Phoebe and Cometilla make their appearance; they give a good account of Fanny's health.

Description of the Morning.

Marco's reflections on the adventure of Fanny. He informs Cometilla that he had written to her father; and then resumes the favourite study.

An objection started against his former doctrine of the motion of the Earth.

This objection productive of a discovery. Marco observes that the place of the rising and setting of the Sun daily varied. He begins to suspect that the Sun has a motion of his own.

He compares the Sun with the Stars: and is confirmed in the discovery.

He makes use of them as fixed Stations, whereby he  
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might more accurately know the motion of the Sun.

He finds the Sun gained upon a particular Star, daily approaching towards it.

Marco pursues his observations, and finds out the annual path of the Sun.

The Sun, in the course of one year, returns to the same Star.

Marco exhorts them to follow the Sun in his annual course, and promises to make the subject much more clear.

The View finishes by his observing the concern of Cometilla to revisit her Sister.

He expresses his own anxiety.

#### V I E W N I N T H.

**F**ANNY continues recovering.

Marco makes use of the necessity Fanny was in, of being left alone as much as possible, to draw Phœbe and Cometilla to their fond pursuit.

Marco finds that the apparent annual motion he had discovered in the Sun, was owing to the Earth's going round him as a central body.

The curious experiment by which he confirmed his own observations, and the truth of his discovery.

A bold imitation of Nature.

Fanny's voice is heard, which puts a stop to Marco's observations.

Marco withdraws, and visits a favourite spot he used to resort to in the grove behind the Cottage.

#### V I E W T E N T H.

**D**ESCRIPTION of Marco's Haunt : and of the scene behind the Cottage.

Soliloquy



## I N D E X.

159

**Soliloquy of Marco, in which he discovers much of what has hitherto been secret.**

**He returns, and finds the three fair friends seated in the Garden.**

**Fanny much recovered.**

**Phœbe addresses Marco on the returning strength of Fanny. Fanny expresses her gratitude. Marco changes the conversation, and invites them to the Mount, where he had made his late experiment.**

**On their way thither, Marco is informed of Fanny's knowledge and taste in the study of Nature.**

**They arrive on the Mount; and the experiment of the motion of the Earth round the Sun is repeated. Cometilla gives the explanation.**

**Fanny takes a part in the explanation.**

**A whimsical contrivance of Marco to explain the Zones of the Earth, and its different circular divisions.**

**A digression on Time.**

**The division of Time marked on the Equator.**

**Fearing lest the view might be too much for Fanny, they return home.**

## V I E W   E L E V E N T H.

**O**N a hint of Fanny's, that the walk of the morning had been beneficial, they return to the declivity.

**Difficulty which Cometilla proposes to Marco; on pointing out the places of the celestial bodies.**

**Marco's Solution; with a discrimination of the Planets.**

**The uses of the several large circles explained.**

**The Altitude.**

**Amplitude.**

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The Azimuth.

Right Ascension.

Declination.

Longitude.

Latitude naturally explained.

## V I E W   T W E L F T H.

**C**OMETILLA continues her explanation of the annual course of the Earth, and of the vicissitude of the Seasons.

Cometilla apologizes for the imperfect way she has gone thro' her task.

They go to the Observatory to confirm the experiment that had been tried on the Hill.

Phœbe, thro' absence of mind, is left on the Hill. Cometilla observes it; and Phœbe by her attitude gives them reason to think that something new had arisen in her mind.

An uncommon discovery of Phœbe.

Improved by Fanny, Cometilla, and Marco.

They arrive at the Observatory.

Marco and Cometilla are both absent, for a few minutes; Fanny observes it, and suspects that something lay heavy at both their hearts.

After tasting of Phœbe's beverage, they descend into the System.

The annual motion of the Earth again exemplified in the Observatory, in a very minute manner.

Digression on the precession of the Equinoxes.

The explanation of the annual course continued.

They return to the Cottage.

## VIEW THIRTEENTH.

**T**HEY breakfast in an Arbour. Fanny was observed by her Sister to have been crying. They all urged to know the cause. Fanny, after intreating their indulgence, told them a dream.

Cometilla encouraged Fanny, and exhorted her to disregard the horrid vision.

Marco's opinion of Dreams.

Marco's prudence on the occasion ; with a discussion of the situation things were then in.

He goes in search of the young Shepherd he had sent with the letter to Cometilla's father.

He sees the Boy at a distance, who fled from him.

Marco's alarm.

Marco conceals himself till the youth returned.

He lays hold of him.

The young Shepherd's story.

Werdan's concealment.

His Speech to the Ladies.

Marco's prudent conduct, and rescue of the ladies.

The three Ladies, under the protection of Marco, leave farmer Mullberry's and return to the Cottage, the young Shepherd accompanying them.

## VIEW FOURTEENTH.

**T**HE day opens with the alarm and uneasiness of the Ladies for the absence of Marco ; their fear heightened by the adventure of the preceding day.

The young Shepherd discovers to Phoebe, who examines him, that he is not farmer Mullberry's son : but that somebody had left him, when a child, under their care.

The arrival of the Hinds. Their relation to the Ladies of the behaviour of Marco towards Werdan.

Marco gives up Werdan into the hands of Marmaduke Meredith, Cometilla and Phoebe's father.

Marco's return to the Cottage.

Phoebe and Marco withdraw into another apartment, on his observing some signs of melancholy on her countenance.

Marco, on Phoebe's information relative to the boy, sets off for farmer Mullberry's.

The conversation of the Ladies during Marco's absence.

Marco's return. His recognition of the young Shepherd, as the son of Phoebe. The affecting scene described.

Phoebe's story, and a part of Marco's.

The arrival of Strangers.

END OF THE FIRST VOLUME.





